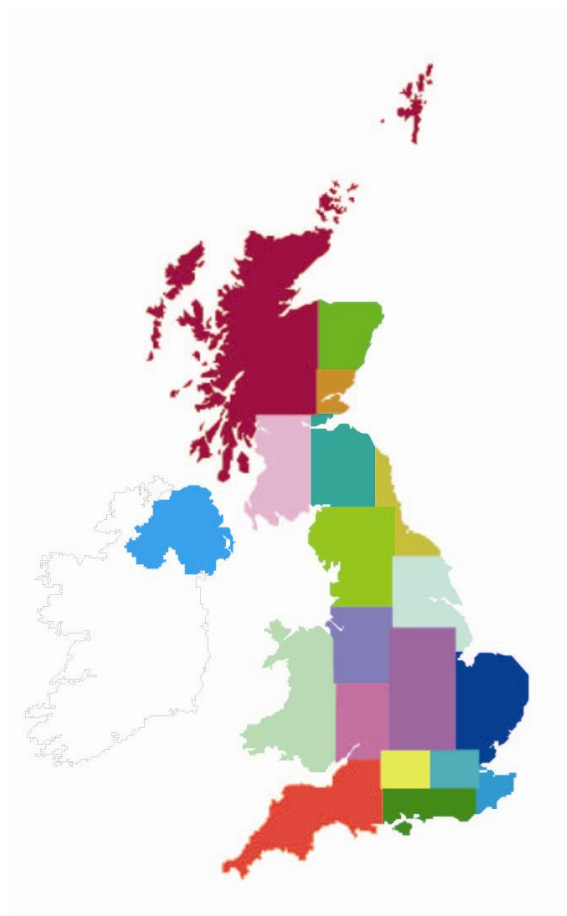




Review of Regional Network Delivery

**Outcome of Consultation with
Users and Operators of Regional Networks**

Improving the JANET Delivery Model



November 2009

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Introduction: The Case for Change

It is increasingly evident to all involved in the delivery of publicly-funded services that the economic outlook for the next decade will be extremely challenging. Funding is expected to be reduced in the short term and managers are being advised not to expect significant growth until the latter half of the decade.

JANET(UK) is assisting the JISC in scenario planning in respect of JANET, the largest single budget line in the JISC portfolio. At present the JISC funding bodies contribute ca. £39 million to the JANET annual budget, and HE institutions collectively another ca. £6 million through the “network charge” imposed by the HE Funding Councils. The JISC has asked for scenarios of five and of ten percent reductions to the JANET budget for AY 2010/11; this implies finding annual savings of up to £4 million on a budget that has already been slightly reduced from its AY 2008/09 level. Further scenarios of between ten and twenty-five percent reductions over the next three years are also being contemplated.

There will also be pressure on capital budgets for major upgrades. This was highlighted in a recent letter from the JISC Executive Secretary to the chair of the “Chairs of MANs” group:

“... there are some serious strategic issues facing the provision of JANET in the next few years which needs co-ordinated consideration by all involved; this includes, but is not limited to, JANET(UK) and its Board and Stakeholder group, JISC and JIR, UCISA, the funding bodies and the wider community. In particular:

- the cost of JANET in a financially constrained environment;
- the growing bandwidth needs of the institutions;
- the particular impact of the “data deluge” and HPC provision on JANET;
- meeting the need for a technology refresh in designing and deploying SuperJANET 6.”

It is essential therefore to adopt the best means of making these savings whilst continuing to provide excellent services to institutions. One approach would be to increase the revenue received from individual institutions – for example by increasing the network charge to HE institutions and instituting a similar scheme for FE colleges. Alternatively the savings might be achieved by reducing the funding available from JANET to operators of regional network *pro rata* to the reductions to the overall JANET budget.

JANET(UK) contends that it is better to “plan smarter” than this, and first to find the most cost-efficient ways of delivering JANET services while retaining the essential qualities that are valued by users. This must happen across all services, but the greatest potential savings will be made in the area of JANET IP Service delivery, due to the total costs involved. The present system of dividing delivery across a large number of autonomous operating entities, each of which itself decides not only how it will operate but also its geographical boundaries, cannot be the optimal means of operation.

Service delivery is not just about cost – it is primarily about meeting customer business needs now and into the future. The present regional network operational structure has served customers well to date, but its inherent structural weaknesses are increasingly proving sub-optimal at determining and responding to future need. Its built-in disaggregation means that national coherence in determining strategy and in its implementation is compromised, as is effective management of the associated funding, commercial and regulatory risk.

Surveys and other studies consistently show that JANET(UK) needs a better understanding of its customer base, in order that it may both ensure greater promotion and take-up of existing JANET services and tailor service development better towards meeting current and future business need. This is not practicable if day-to-day service delivery is through a regional network operator which often acts as a customer body as well as a service provider. There is inevitably a lack of clarity for all involved as to where responsibilities lie and, more importantly, no coherent structure for effective management of these relationships.

This paper explores these issues. As announced in July, the JANET(UK) Board's view is that the delivery model needs to be changed from the present arrangements. This conclusion was reached after detailed consideration of the issues involved and was a result of what were seen to be four overriding considerations:

- in the current funding climate all significant savings must be made while pursuing the best possible value for money;
- a unified technical architecture across JANET, nationally and regionally, is a prerequisite if future demands are to be met;
- it is essential for JANET(UK) to be closer to its users than is presently the case, with possibly a different and clearer role for regional organisations;
- there must not be unmanaged regulatory issues or risk around procurement.

As outlined in Chapter 2, the changes envisaged to the delivery model, once completed, could result in annual savings of up to £2.5 million and thereby contribute significantly to the overall cost savings that will need to be made. Of equal importance, the analysis suggests that re-engineering can help to meet the wider objective of making JANET services, present and future, better able to meet customer need.

Since that time JANET(UK) has consulted with institutions and discussed with individual operators of regional networks what the impacts might be of making such changes. The outcomes of that process are reported in Chapter 3 and have been very helpful as we have considered how to move forward. As reported in Chapters 4 and 5, we see four broad areas for action arising from this work:

- in changing the means of **regional delivery** of JANET services
- in **planning change** to this means of delivery
- in **adding value** as a result of this change
- in **engagement** before, during and after change is made.

Our overall conclusions in respect to each of these are summarised overleaf.

Our immediate next steps will be to continue consultation with individual operators of regional networks, to arrive at clear plans with each and thereby remove the uncertainty and planning blight that will otherwise inevitably ensue. We will also consult further on structures for regional support and engagement, prepare for the changes that must be made within JANET(UK) itself, and participate fully in the debate envisaged by the JISC Executive as to how best to deal with the strategic issues facing JANET.

In July we proposed a number of principles for implementing change. These apply directly to much of the above. They also promised that change would be delivered in such a way as to maintain continuity of service delivery, and to ensure that operators of regional networks are not left with unfunded liabilities where these have been accrued in the past performance of their obligations under the JANET Partner Agreement. These principles remain as we move forward. We look forward to working with all our partners to ensure that the unique achievements of JANET are preserved and built upon during what will undoubtedly be challenging times ahead.

Bob Day
Chief Technology Officer

26 November 2009

regional delivery	<p>We remain committed to the principle of regional delivery. This applies both to day-to-day operational matters (provision of regional transmission and IP infrastructure) and to providing a regional focus for service delivery and development. Where fit for purpose and value for money, we will work with existing regional network infrastructure, recognising its embedded value from the investments made in it. Maintaining strong regional relationships will ensure that where there is restructuring this will take place only by consultation and consensus.</p>
planning change	<p>We expect over the period 2011 to 2013 to move progressively away from use of the JANET Partner Agreement as the means of operational delivery. This will be achieved by a move towards primarily in-house operation of regional networks, as is the case at present for three of these. However, we recognise that “one size fits all” cannot be appropriate within a structure that recognises regional diversity. The paper discusses means by which special regional circumstances might be accommodated, provided that this is done in a manner that delivers the level of cost saving and risk management that is being sought nationally.</p>
adding value	<p>We will wherever feasible preserve and enhance the additional value that is delivered by regional networks. This will apply to additional connectivity services and also to the increasing need to provide support for institutional activities in business and community engagement and other regional agendas. In doing so we must improve the transparency of funding of activities that are retained, to ensure those funding them that they are both valued and sustainable.</p>
engagement	<p>We will implement change within JANET(UK) to increase the company’s ability and capacity to engage directly with our individual customers, and structured on a regional basis. As part of this we wish to improve collaboration across relevant parts of the public sector both regionally and nationally. This is not just important to HE and FE strategic interests, but is also another potential source of cost efficiencies and therefore of protection of services going forward.</p>

1 Background

Service Obligations of JANET(UK)

- 1.1 JANET(UK) is obliged under its Funding Agreement as a related body of HEFCE to deliver a set of JANET services to HE and FE as set out in a “JANET Service Description” that is part of the Funding Agreement. The JANET Service Description is output-based: it does not specify the means by which each service must be delivered, just its characteristics and associated service levels. Critically, it requires JANET(UK) to deliver these services “*to the door*” of the institution, not to a regional network to which the institution is attached. The JANET Service Description is managed by the JISC.
- 1.2 The service of relevance to the present paper is the JANET IP Service. Architecturally, JANET comprises a national backbone to which eighteen regional networks are connected. The JANET IP Service is delivered to HE and FE customers through these regional networks. Fourteen of the regional networks are operated by companies or consortia formed by HE institutions in the region under contract to JANET(UK) and known as Regional Network Operators (“**RNOs**”).¹ It is this part of the JANET delivery chain that is discussed in this paper.

History of Regional Delivery

- 1.3 The current model for regional delivery of JANET service to the end customer was formalised in 2001 with the introduction of the Regional Partner Academic Network (“**RPAN**”) agreement, under which the RNOs delivered the JANET IP Service to JANET customer institutions in each of their catchment areas.
- 1.4 Since 2001 there has been a small reduction in the number of RNOs, and the RPAN contract has undergone a number of revisions, following regular review and consultation. In its present form, the agreement is known as the JANET Partner Agreement (“**JPA**”).
- 1.5 In essence, the JPA requires a RNO to deliver a connection carrying the JANET IP Service to each HE and FE institution in its region, for which JANET(UK) reimburses the RNO’s costs. At this level it is a straightforward relationship between customer (JANET(UK)) and service provider (RNO), no different from a relationship JANET(UK) might have with its commercial service providers. The JPA with each RNO came into effect in October 2008 and its initial term expires at the end of September 2011.
- 1.6 As it specifies service outputs rather than the means of delivering them, the JANET Service Description places no formal requirement upon JANET(UK) to utilise a regional network or RNO in delivering the JANET IP Service. JANET(UK) has since the outset recognised that it is unlikely that there would ever be an overwhelming case to do so purely on operational grounds.
- 1.7 However, there are other important benefits that can accrue from operating a model of federated national and regional delivery of network services. At the time the JPA was developed these were articulated as:
 - Where institutions within a region wish to develop significant regional infrastructure and assets for their own purposes, the model gives the ability for this investment to be shared.

¹ Delivery in Wales is through the Public Sector Broadband Aggregation (PSBA) Network. The service is delivered to schools through networks provided by local authorities, and the regional broadband consortia (RBCs). JANET(UK) itself operates a further three regional networks and AbMAN, one of the RNOs, has recently asked JANET(UK) to take over running of the regional network for reasons unrelated to JANET(UK)’s review. Separate arrangements apply to the UHI Network.

- The model provides the managerial and technical infrastructure for institutions within a region to develop additional services to meet regional needs where applicable. Recent shared-service activities are an example of this.
 - The model provides the ability to continue to promote regional collaboration via the existence of the regional network as a focus.
 - The model has led to the development of an extensive base of technical and associated expertise across the sector as a result of designing, procuring and operating regional networks.
- 1.8 Overall, many RNOs have facilitated collective engagement amongst institutions within their individual regions, offering a level of collaboration and organisation that no single institution in the region could provide. They are also effective at meeting bespoke local needs.

Present Operating Environment

- 1.9 During the last decade there have been significant changes to the environment in which JANET operates.
- The JANET community has expanded significantly, now reaching all of the Further Education sector and an increasing number of Local Authorities. This has approximately quadrupled the base of customer organisations.
 - Growing collaboration and interworking with the schools' sector, with all schools' networks now using JANET as their interconnect, and in many cases for global Internet connectivity. More recently, this has extended to interworking with other public-sector networks in health.
 - Over time, the model for connectivity to schools' networks has evolved from provision of a direct connection to the JANET backbone to a closer integration with the JANET regional network (for example, in the West Midlands, Kent, East of England and the North West).
 - There has been steadily increasing reliance on the network by end customers for business critical functions spanning teaching, learning, management and administration. This translates into demands for more bandwidth and lower latency to support specific applications, and around-the-clock availability to serve the expanding range of uses and users, both in the UK and overseas.
 - There has been growing interest in JANET connectivity from commercial companies for the purposes of supplying services to educational establishments.
- 1.10 The review was informed not only by the evolving environment outlined above, but also by additional considerations relating to the environment in 2009.
- The recent deterioration in the UK economy is expected to result in pressure on the JANET budget as reductions in public expenditure flow through to the funding councils and JISC. The AY 2009/10 budget has already been frozen at slightly below its AY 2008/09 level, and the JISC has asked JANET(UK) to plan for scenarios for AY 2010/11 budget cuts of five and ten percent.
 - There have been changes in the regulatory environment associated with public procurement, leading to a greater likelihood of challenge. This reinforces the need for JANET(UK) to continue to ensure that all its procurements are conducted strictly in compliance with prevailing regulations.²

² The EU Remedies Directive comes into effect in the UK in December 2009. The intent of the Directive is to make it easier for commercial suppliers to challenge the procurement decisions made by a contracting authority. This will add to an increasingly litigious environment.

Review Process to Date

- 1.11 Against this background, JANET(UK)'s Operations Division conducted a review of the regional delivery model in the spring of this year. A similar review is carried out before embarking on a new cycle of any major element of operational service such as the agreement between JANET(UK) and the RNOs. The last such review resulted in the development and placing of the JPA.
- 1.12 This review was (deliberately) operational in scope, and related to the increasingly evident need to consider whether efficiencies could be found that would lead to significant cost savings. Regional delivery accounts for approximately 40 percent of the annual cost of JANET, so significant percentage cost savings found here would have a proportionately significant impact on the overall cost of delivering JANET.
- 1.13 The review was (equally deliberately) not concerned with the present-day performance of RNOs in delivering the JANET IP Service under the JPA. As is evidenced in Chapter 2, this is not a concern. Rather it was about the underlying *structural* aspects of JANET IP Service delivery.
- 1.14 The review took the form of an options appraisal against a number of possible alternative delivery models. The options appraisal and its conclusions are reported in Chapter 2 of this paper.
- 1.15 Following scrutiny and endorsement of the conclusions by the JANET(UK) Board, an announcement was made in July that JANET(UK) would, over a period of time, seek to implement a more directly managed regional delivery model than is enshrined in the present JPA, in order that it might realise the benefits the options appraisal suggested were achievable. The text of the announcement is given in Appendix 1.
- 1.16 In doing so it recognised that, apart from the obvious consequences to individual RNOs, there would almost certainly be significant concerns among institutions served by a RNO. These concerns would most likely be around retention of the collateral benefits of the regional network, as outlined above.
- 1.17 Accordingly, it launched a period of formal consultation to allow institutions to express their views and concerns. In parallel Operations staff visited each RNO to discuss informally how the proposed change might affect the RNO. Chapter 3 presents the results of the consultation and discusses the issues raised. As one outcome of these visits it has extended the JPA with all but two RNOs for a further year, until end September 2012.

2 Operational Delivery: Options Appraisal

Outcomes Sought

2.1 In order to meet the challenges outlined in Chapter 1, and to drive the options appraisal, three overall outcomes for the delivery of JANET were identified. These are as follows and include a breakdown into individual objectives for each area. Performance against these needs to be maintained or bettered as a result of any change to the delivery model:

Better Meeting Customers' Needs	Improved response to customer requirements <ul style="list-style-type: none"> • services remain fit for purpose • early adoption of appropriate new technologies
	National coherence <ul style="list-style-type: none"> • technical architecture is visible and fit for purpose • universal service standard, to ensure equality of opportunity across the whole user base
	Improved customer relationship management <ul style="list-style-type: none"> • direct relationship with customers, leading to increased responsiveness • clearer responsibility for JANET service delivery • better sector awareness of JANET services and applicability
Improving Overall Value for Money	Cost effective use of infrastructure <ul style="list-style-type: none"> • timely deployment of appropriate technologies • long term contracts where appropriate
	Improved opportunities for aggregation <ul style="list-style-type: none"> • improved pricing from suppliers • reduction in management overheads and duplication • opportunities for working with other parts of the public sector
	Reduction in JANET(UK) management overhead <ul style="list-style-type: none"> • simplified management regime with shorter delivery chains where possible • reduction in operational and political management
Improving the Management Framework	Continuous improvement in quality <ul style="list-style-type: none"> • engendering a culture leading to continuous improvement
	Management framework stability <ul style="list-style-type: none"> • framework operable for 10 years
	Risk reduction <ul style="list-style-type: none"> • regulatory risk • commercial risk • funding risk

Options Considered

2.2 A set of seven delivery options were then identified as follows.

“Current JANET Partner Agreement”

2.3 This option implies retention of the *status quo*. The current set of regional networks operating under the existing JPA contract would be continued, with JANET managing and operating the remaining regions directly.

“Enhanced JANET Partner Agreement”

- 2.4 This option envisages that JANET(UK) would negotiate enhancements to the JPA contracts on an individual basis with each RNO. The changes would be designed to meet the majority of JANET(UK)’s objectives for delivery of JANET service. The main areas where amendment would be sought were considered to be:
- contract changes to be negotiated with individual RNOs to take advantage of individual efficiencies and best practice;
 - extension of the auditing provisions to technical network management and operational practices of the RNO;
 - JANET(UK) to have more control over RNO compliance with procedural, technical and policy requirements;
 - stricter branding provisions;
 - extension of out of hours cover.
- 2.5 It was not envisaged that these changes would extend to the idea of RNO staff acting as regional “ambassadors” for JANET and its services, as mooted in the negotiations for the original JPA.

“Public Sector Procurement”

- 2.6 This option envisages JANET(UK) joining a large-scale aggregated procurement involving other parts of the public sector than tertiary education. The presumption is that such an activity would not be led by JANET(UK), but that it would be sufficiently influential in the governance of the initiative that it could ensure a reasonable match of the services procured to higher and further education requirements.³
- 2.7 The rationale for such an initiative is likely to be twofold: to provide better value for money to each sector involved via aggregated procurement (and therefore a net saving to the public purse) and to create an environment for improved public services via the common network infrastructure created.
- 2.8 The network procured is likely to be delivered and operated by a commercial supplier selected via agreement of a common set of services agreed between the sectors participating.

“Standalone Regional Networks”

- 2.9 This option envisages JANET(UK) operating just the JANET backbone network and delivering services only as far as the regional network entry points. JANET(UK) would relinquish responsibility for regional delivery. Each RNO would be accountable for onward delivery of JANET service to the institutions in its region. In this scenario, JPA contracts would be terminated and not replaced with any direct contractual arrangements between JANET(UK) and the RNOs.
- 2.10 It was assumed that the delivery of JANET service to the border of the regional network would need to be subject to a service level definition between JANET(UK) and the entity funding the RNOs, and that the RNOs would be individually responsible for onward delivery of service to customer sites under separate contract/SLD with the JISC.⁴

³ The exemplar for this option is the PSBA initiative which is led by the Welsh Assembly Government and has health, local government and higher and further education as founding sectors. It is now being extended to other parts of the public sector within Wales.

⁴ The funding bodies would need to consider how they wished to fund the RNOs to do this. It might be that the RNOs receive funding directly from the JISC for the provision of the service, or the institutions in the catchment area might collectively directly fund the local RNO, or a mixture of both.

“Open Procurement”

2.11 This option envisages JANET(UK) procuring managed service(s) from commercial supplier(s) for provision of regional networking infrastructure and service on the open market and using standard procurement processes in accordance with the public procurement regulations. The service provided would be determined by what the market offers, and how service is provided would be determined by individual suppliers.

“Sub-contracted Operation”

2.12 This option envisages JANET (UK) procuring and owning the regional network infrastructure, probably based upon fewer larger regional aggregations, but sub-contracting all management and operation of the regional networks to one or more third parties via procurement on the open market.

2.13 The day to day operation of these newly aggregated network infrastructures would be undertaken by the selected network operator(s). The letting of contracts to operate individual regional infrastructures would either be done as part of the procurement process for each regional infrastructure, or would be let under the terms of an overarching framework procurement for network operations, procured separately from any regional telecommunications infrastructure.

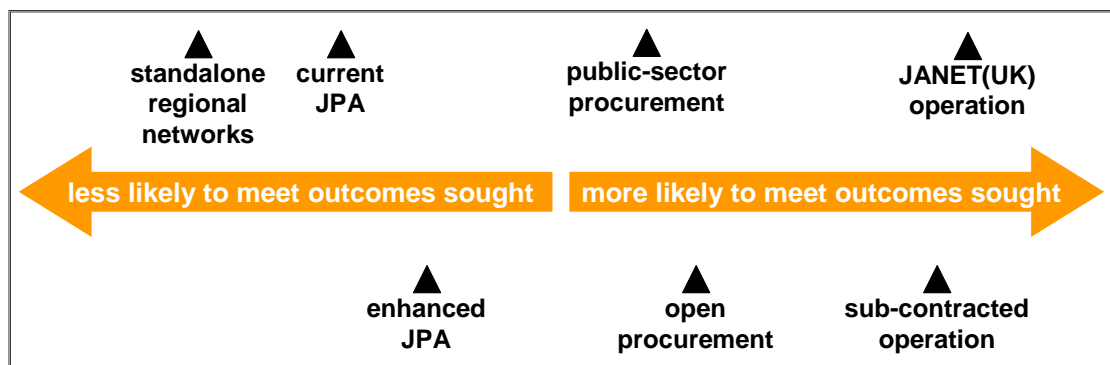
“JANET(UK) Operation”

2.14 This option envisages JANET procuring, owning, managing and operating the entire regional network infrastructure, subcontracting some routine or specialist aspects of the operation where appropriate. It envisages this being the case throughout the UK (with the exception of the PSBA in Wales). JANET(UK) would therefore be responsible for design, procurement, installation and subsequent operation of the regional network and its associated infrastructure supply contracts.

Appraisal of Options against Outcomes

2.15 Each of these options was evaluated against the set of outcomes listed above, by considering whether the option would allow JANET(UK) to move, either partially or more definitely, towards or away from the outcome sought. The narrative for this evaluation is given in Appendix 2. Equal weighting was given to all outcomes, as it was considered that all are important contributions to the overall outcome sought.

2.16 In this way it was possible to rank the options according to their relative likelihood of achieving this overall outcome. The result was as follows:



2.17 This conclusion is not surprising, given that the outcomes sought are largely around the need for more structured and cost-effective delivery of the JANET IP Service.

2.18 What the options appraisal does provide is an insight into the areas where a change of model could effect improvement, primarily to the costs of service delivery. The main areas where this should be possible include:

- Reducing the extended delivery chain built into the JPA model and its inherent duplication of operational activities, arising from the fact that many of these activities (capacity planning, procurement, provisioning, IP operation, service monitoring and fault management) within an RNO also exist within JANET(UK). Therefore there is no obvious reason in principle for out-sourcing these.
- Improving the cost-effectiveness of procurement by deriving greater aggregation and also reducing the total amount of skilled procurement effort required across the whole estate. Aggregation with other parts of the public-sector is likely to become an increasing driver, particularly as public-sector budgets are reduced. Experience suggests that effective large-scale aggregation requires an overarching national approach coupled with regional implementation.
- Improving the coherence of the technical architecture of JANET, and thereby being able to maintain the universal service provision characteristic of JANET. This aspect is also linked to cost of provisioning and managing: standardisation reduces procurement and operational costs, and better integration at the IP level between the national and regional backbone can lead to cost savings through more tightly-coupled design.

2.19 It is these aspects that JANET(UK) intends to take forward in re-engineering the delivery model.

Financial Modelling

2.20 The two options of operation either sub-contracted to the market or brought largely in-house appear to provide the best fit against the outcomes sought. Both were subjected to financial modelling. This encompassed the following aspects of operations, already in place for the three regional networks operated in-house by JANET(UK):

- IP network operations and field engineering
- service desk
- supply contract management
- connection provisioning
- regional infrastructure design and re-procurement
- overall service management.

2.21 The modelling did not make any assumptions as to how the costs of telecommunications or of transmission or IP equipment might change as a result of JANET(UK) taking the procurement of these in-house. It is believed that the RNOs generally have achieved good contracts for these. Therefore any significant savings would be due primarily to the greater purchasing power that JANET(UK) might be able to bring compared to an RNO. As there is limited quantitative evidence of what these savings might be, the modelling considered only the staffing aspects above.

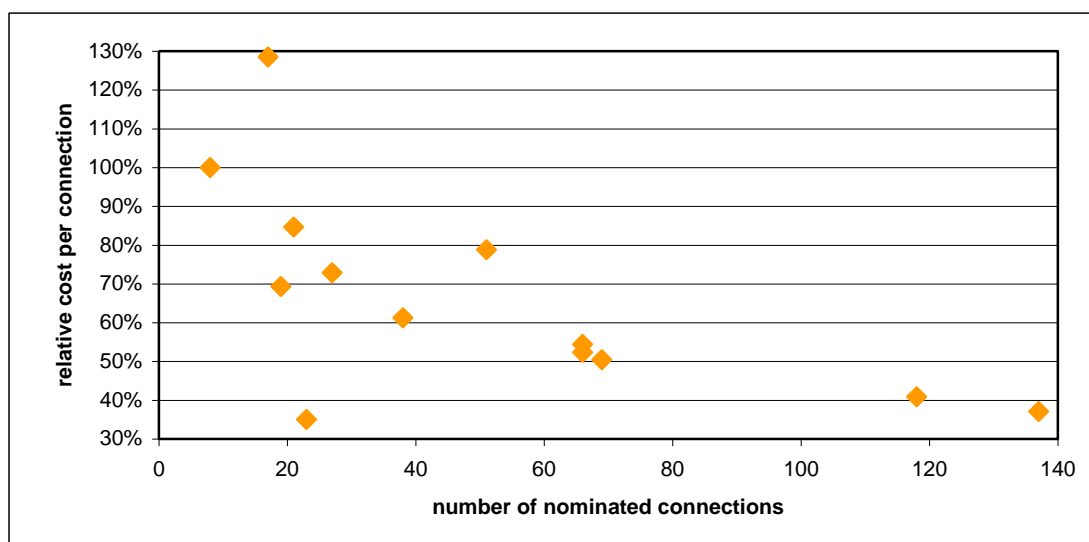
2.22 Although there are some small differences between the two options, depending upon assumptions made, the cost implications were similar for both. For the purpose of this section the estimated costs of retaining operations largely in-house are compared against costs for contract year 2009/10 of operating the fourteen JPA contracts.

2.23 In doing so the assumption was made that the present costs for provisioning, network operation and supplier management of the ca. 230 connections presently delivered outside the JPA would scale linearly to the additional ca. 630 connections provided through the JPAs. This is a conservative estimate, but this was felt appropriate as it is known that there would be additional connections to support within a RNO, above those nominated via the JPA. Therefore there is some capacity within the model to accommodate this requirement. To these costs were added estimates of the additional administrative and other overheads that could be expected to accrue.

2.24 The original modelling addressed only the operational aspects of taking regional delivery in-house, but with an expectation that there would also be increased effort required in managing relationships with individual institutional customers. As a result of the considerations outlined in Chapter 4, the costs of this have been added to the modelling. The overall comparison of costs is as follows.⁵

AY 2009/10 cost under JPA		Estimated cost if taken in-house	
JPA staff and company cost elements	£4.9m	operations and contract management	£1.5m
JPA management costs	£0.2m	administration costs	£0.5m
customer relationship management	£0.1m	customer relationship management	£0.7m
Totals	£5.2m		£2.7m

2.25 The projected overall cost saving can be set into context by correlating the running costs of each RNO under the JPA with the number of (nominated) connections supported. This gives the following. (Data are from the August 2009 benchmark, with FaTMAN, supporting the smallest number of connections,⁶ as the baseline.)



2.26 Clearly there are a few anomalous unit costs (both high and low), and in practice a RNO may be supporting more than the number of connections mandated under the JPA. But it is clear that significant reduction in unit cost is achieved as the number of connections supported increases – and therefore that aggregation of staffing effort, particularly of the small and medium sized regional networks should save costs.

2.27 If the unit cost per connection of the large regional networks applied to all, there would be a nominal annual saving of approximately £1.5 million per annum to the staff cost element of the overall JPA budget. The comparison shown above suggests that if JANET(UK) were to operate in-house all connections presently served through the JPA the saving might be £2.5 million per annum.

2.28 Therefore there would appear to be about £1 million per annum of cost associated with a combination of overheads due to running fourteen separate delivery

⁵ All figures include VAT where applicable.

⁶ AbMAN, the smallest at present, was excluded as it is exiting from the JPA.

organisations, and/or additional RNO activities that are in effect subsidised from the JANET budget.

- 2.29 This is not to suggest that these activities are not worthwhile – clearly a number are highly valued by institutions. But it does raise an issue of transparency of and accountability for JANET funding at a time when scrutiny will inevitably be increased. There is clearly an “adjunct” principle potentially in operation, whereby the existence of an infrastructure and staff to manage it makes possible additional activities that would otherwise not be economically viable. Part of the rationale for the creation of (then) MANs in the first instance was to create this capability and environment.
- 2.30 But the line between this and subsidy of these activities from the JANET budget is clearly a fine one. In the past times of relatively generous funding a degree of flexibility could be retained in this respect. It seems increasingly likely that economic pressure will in future constrain this flexibility.

Costs of Transition

- 2.31 The financial modelling also considered the costs of transition to an in-house model in these two options. The modelling suggested that total transition costs could amount to around £2 million. These costs are dominated by the estimated costs of discharging any TUPE obligations that might fall upon JANET(UK), assuming that RNO staff involved exercise any rights they may have and that JANET(UK) could not redeploy such staff. A conservative set of assumptions was used for this liability, as its extent can necessarily only be assessed in specific individual cases.
- 2.32 Therefore the costs of transition could be expected to be recouped reasonably quickly from savings made if it were decided to move to either of the options. Of course, in practice any transition would take place over a number of years for operational reasons. Therefore the transition costs would be profiled over this period, as would the level of recurrent savings.

Reducing Costs through Demand Aggregation

- 2.33 There are a number of areas where evidence indicates that reductions to the JANET cost base can be achieved by a more aggregated approach. One is economies of scaling of the manpower aspects of IP operation and of procurement and provisioning of connectivity, as explored in this Chapter.
- 2.34 Aggregating telecommunications infrastructure and bandwidth demand can also save cost. There is no existing evidence of this resulting from aggregation of individual RNO requirements, as this has not been attempted to date. But there is evidence of cost savings from aggregation across sectors within a region.
- 2.35 As a recent example, in 2007 JANET(UK) re-procured the West Midlands regional network. Part of its procurement strategy was to invite all local authorities in the region to use and therefore contribute to the cost of the regional backbone infrastructure.
- 2.36 The annual cost of operating the network dropped by ca. 27 percent. Some of this saving resulted from the transfer of operations to JANET(UK), but the rest was a result of the authorities’ contributions. Evidence from other aggregation projects suggest that a saving of between 15 and 20 percent might be made by aggregation of local authorities’ requirements with those of HE and FE. A similar initiative is now in the final stages of procurement in the East of England region, in partnership with the Regional Broadband Consortium.
- 2.37 Opportunities for similar exercises will vary from region to region. But the imperative in today’s economic climate is to find such savings by whatever means possible and JANET(UK) will pursue such opportunities wherever there seem to be reasonable prospects of making such savings.

3 Outcome of Consultation

Consultation Process

- 3.1 JANET(UK) wrote to all the institutions that receive JANET via a regional network operated under the JPA and received 61 written responses to its request for comments. It also received many informal comments as a result of discussions during the period of consultation. These latter comments largely echoed the written responses.
- 3.2 Just over half of the responses were from individual HE institutions, and a third were from individual FE colleges. The responses were from institutions across all but two of the regional networks. Two responses were received from the Boards of RNOs where they felt it was appropriate to comment on behalf of their institutional membership. As might be expected, more than two thirds did not express a particular opinion with respect to changes proposed to the delivery mechanism, but were concerned about the potential consequences.
- 3.3 Some respondents felt that there should have been consultation with the RNOs and with institutions before the JANET(UK) board considered the outcome of the options appraisal. A number felt also that the reasoning behind the recommendation should be made public, so that they might assure themselves that the case for change is properly made.
- 3.4 JANET(UK) recognises that there have been some aspects of its communications to date that have been less than satisfactory. It has taken steps to improve this process as this work goes forward.
- 3.5 However, JANET(UK) does not share the view that it would have been beneficial to consult institutions and RNOs when conducting the options appraisal. This exercise was specifically to analyse the fitness of the current arrangements for future operational purpose in meeting its JANET IP Service obligations to the JISC. Clearly JANET(UK) must at all times carry out these obligations as cost-effectively as possible, particularly in the present challenging funding environment.
- 3.6 The purpose of the consultation has therefore been for JANET(UK) to understand better and in detail what the issues will be in what *prima facie* would be a conventional re-engineering of an operational delivery model to take cost out. Of course, the JANET community is large and diverse; regionalisation has been an important factor in how it conducts its business (and increasingly so); and delivering JANET has always involved more than service delivery to the letter of its agreement with the JISC.
- 3.7 So, using the findings from the consultation, JANET(UK) hopes to be able to implement change in a manner that delivers cost savings, but also where possible builds upon the sector benefits that have accrued from the current model.

Potential Consequences of Change

- 3.8 With regard to potential consequences of any change, respondents raised concerns broadly in four categories, summarised below. A breakdown of comments by category and frequency is given in Appendix 3.

Quality of service provided

- 3.9 Concerns were expressed that the high quality of JANET service delivery would not be maintained without the local support, expertise and customer focus currently delivered through the RNOs.

Range of services provided

- 3.10 Concerns were expressed that the range of services provided by RNOs in addition to those set out in the JANET Service Description might be discontinued or become

uneconomic as a result of the changes. The provision of additional connectivity to institutions, for resilience or other purposes, was highlighted in particular. Also highlighted were potential threats to an institution's activities in business and community engagement and the development of shared services.

Cost of services to institutions

- 3.11 Concerns were expressed that the cost to institutions of services currently provided by a RNO may rise as a result of the changes. It was suggested also that if cost savings are achieved these should be reflected at least in part in costs to institutions, for example via the JANET network charge to HE institutions.

Regional collaboration

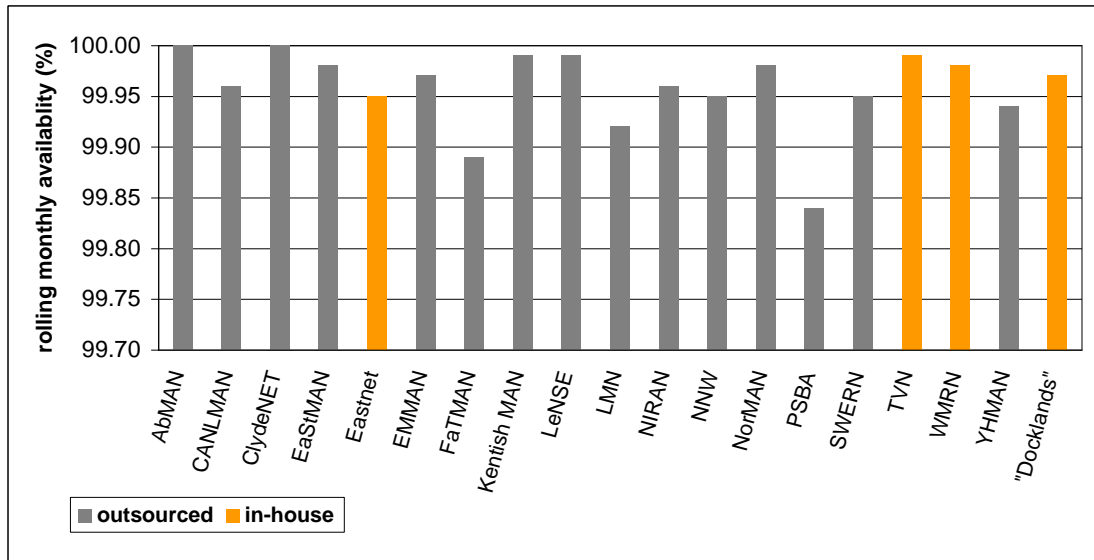
- 3.12 Concerns were expressed that the changes will result in the loss of an important forum for regional collaboration and influence, both within the regional HE and FE sectors and in engagement with other initiatives within the region.

Initial Conclusions

- 3.13 As the consultation has made clear, there are two aspects of the overall delivery of JANET: relatively straightforward operational delivery and the equally important matter of regional support and engagement with those using the services.
- 3.14 As the options appraisal presented in Chapter 2 has made clear, improving operational delivery is primarily about increasing efficiency to reduce ongoing costs, whilst preserving the present high quality of services. Regional support and engagement is about ensuring that JANET remains fit for purpose in meeting its customers' needs, and that customers can derive maximum benefit for the funding invested in the network.
- 3.15 A decade of operating the RPA and JPA regimes has coalesced these two aspects in different ways in different regions, so that it is now difficult to assess the overall effectiveness of either in terms of the investment being made by the JISC and institutions. Both are essential and both need to be operated as efficiently as possible if the interests of JANET customers are to be best served.
- 3.16 The rest of this Chapter presents initial observations and conclusions relating to concerns raised over the impact on quality, range and costs to institutions of the services provided, should these cease to be provided by a RNO. Chapter 4 considers the matter of regional support and engagement and how JANET(UK) might introduce better mechanisms to achieve this. Finally, Chapter 5 provides some principles by which JANET(UK) will be guided in discussions with individual RNOs as to the most appropriate way to re-engineer the operational model for delivery of IP bandwidth within a region.

Quality of service provided

- 3.17 At an operational level, the evidence from monitoring JANET IP Service performance suggests that there is no discernible impact on the reliability of the service whether JANET(UK) or a RNO delivers it.
- 3.18 This is illustrated by the 12-month rolling average availabilities of individual connections, categorised by regional network over the last year. The target in the JANET Service Description is 99.7% which is exceeded on average by all regional networks. (A number of connections are also delivered by JANET(UK) directly onto the JANET backbone in the Docklands. The corresponding 12-month rolling availability for these is also shown in the chart.)



3.19 Naturally there is clearly more to overall quality of service than simple availability, and the continued provision of appropriate local support will be important. This should not be confused with local operation: the evidence of JANET(UK)'s operation of Eastnet, TVN and WMRN suggests that operating the IP service centrally can work perfectly well, provided that adequate regional engineering support is in place.

Range of services provided

3.20 It is clear from the consultation that institutions perceive the most important operational service provided by RNOs, in addition to those funded through the JPA, to be providing the JANET IP Service to additional sites of an institution, for additional connectivity or to improve resilience (or both).

3.21 JANET(UK) already tariffs additional connections for HE and FE based on recovering only the marginal costs of doing so (i.e. the costs of any access link and equipment, plus a small operational charge⁷). There are no costs included for the use made of the regional infrastructure and JANET national services, as these are already funded by the JISC. In some regional networks the capital and some recurrent costs of additional connections have been funded as part of the SuperJANET5 programme and its predecessors. Whether this will be possible in future is a matter of funding policy – and of availability of further capital funding.

3.22 As part of this work, JANET(UK) will review its tariff for additional connections, with a view to aligning this to *de facto* practice in regional networks. It has already done this in the West Midlands, as part of the change to a regional network operated by JANET(UK). It will also continue to recommend to the JISC and funding bodies that the whole requirement of an institution in this respect is recognised in any future central funding decisions.

3.23 More work is needed to understand the nature, take-up, cost base and funding sources for other additional services cited in the consultation. Some of these are additional operational services, including managed-router and other services assisting institutions with the management of their own campus networks. Others are essentially central purchasing of additional services of interest to institutions. Some RNOs include assistance in design and procurement in the portfolio of additional services provided.

⁷ For example, the present tariff for an additional 100 Mbit/s connection is £1,600 set-up and £1,900 per annum, plus the cost of any access link required.

- 3.24 Further investigation is also needed as to what role RNOs are playing in supporting shared-services initiatives and “third stream” (business and community engagement) activities. There is clearly scope for operational services involving use of the regional network, but a RNO may also be playing a part in the specification and implementation of these.
- 3.25 One operational service related to business and community engagement cited by several RNOs is the provision of a commercial Internet feed for traffic that they conclude cannot be shipped over JANET. In regulatory terms, any traffic that transits a regional network lawfully could also transit the JANET backbone and reach the commercial Internet in this way – possibly at lower cost than using a separate commercial feed. JANET(UK) is working with the JISC to better understand institution perceptions in this area and to provide clearer guidance.

Cost of services to institutions

- 3.26 JANET(UK) does not see any reason in principle why a change to the regional delivery model should lead to an increase in direct costs to institutions, particularly in the area of additional connectivity. And in matters such as a feed to the commercial Internet it may be possible to take cost out.
- 3.27 Otherwise, in all discussion of additional services there is inevitably the question of use of JANET funding. Strictly, none of the services mentioned above is eligible for funding under the JPA, except where use of SuperJANET5 funding has been agreed for additional or resilient connectivity. In practice some limited use of JPA funds has been agreed in the area of improving JANET IP Service reliability.
- 3.28 It is at present unclear in a number of regions to what extent JPA funds have been used to enable other services, either explicitly or by an “adjunct” principle, and whether ceasing the JPA would therefore threaten these services. In some regions this includes the provision of additional connectivity other than via the use of SuperJANET5 capital funding. There is a need to understand better exactly what the cost base of these services is within the region to ensure transparency. This will be a subject of more detailed discussion with RNOs.

JANET Network Charge to HE

- 3.29 One issue raised was whether, if JANET(UK) could reduce the cost of regional delivery of JISC-funded connections, HE institutions in the region could receive a rebate to their JANET network charges.
- 3.30 Unfortunately this is not a matter under JANET(UK)'s control, as the level of charges is determined by the HEFCs. The evidence in recent years is that this is ceasing to be strictly linked to changes to the contribution the JISC funding bodies collectively make to the JANET budget. For example, the total revenue to be collected via the network charge rose by over nine percent over the period AY 2007/08 to AY 2009/10, against a rise of less than one percent in the collective contribution from the funding bodies over that period.
- 3.31 It may be that this needs to be considered from another perspective. Given the likelihood of reduced central funding for JANET over the coming years, any savings made to its cost base may be in effect mitigating an increase to the JANET network charge that might otherwise be applied.

4 Regional Support and Engagement

- 4.1 The consultation conducted to date suggests that there are four broad areas where existing regional structures deliver benefits to institutions:
- **influence:** the ability for institutions to provide feedback on existing services and to help shape future services;
 - **accountability:** the ability for institutions to hold their service provider to account if the services provided are not fit for purpose or the provider does not respond to changing requirements;
 - **support:** the provision of a vehicle for institutions to provide mutual support and awareness, and to share experiences in areas of common interest;
 - **regional collaboration:** the resources to explore opportunities for new and better ways of working, either within the HE and FE sector or more widely.
- 4.2 JANET(UK) has been considering possible ways of ensuring that these benefits are maintained and built upon. It recognises also that it will need to introduce a more consistent structure for its own engagement with institutions, an area where there is an inconsistent and sometimes insufficient approach across the UK.
- 4.3 This Chapter sets out some initial ideas as to how this might be implemented. Further formal consultation with institutions will be needed before plans are finalised, and this will be done early in 2010. In the interim, comments on what is presented here would be welcomed.

Influence and Accountability

- 4.4 JANET(UK) envisages appointing a number of individuals as its representatives on a regional basis. Each would be dedicated to and be located in a particular region and would have the following broad remit:⁸
- To be available to all JANET customers in the region as a point of contact into JANET(UK), for whatever reason. The individual would not be expected to be able to deal with all questions personally, but would be required to own the question until it has been dealt with satisfactorily.
 - To be proactive in understanding the needs of JANET customers in the region, in helping to match these to existing JANET services (and helping to resolve problems where needed); and in feeding into JANET(UK) new requirements to ensure that they become part of ongoing development.
 - To be active in a similar manner in understanding wider regional agendas and any role JANET might play either regionally or nationally (or both). Where a particular regional development is taking place and this involves JANET, taking ownership of JANET's role and possibly a wider leadership role if appropriate.
 - Generally taking a lead in the region to take forward the interests of JANET customers, where this is within the broader remit to JANET(UK) as set out by the JANET funding bodies from time to time.
- 4.5 These individuals might be either direct employees of JANET(UK), or possibly seconded to JANET(UK) for a fixed term, and would work into its Communications & Support Division. The cost of implementing this has been built into the financial modelling presented in Chapter 2.
- 4.6 Through this structure it should be possible to provide improved influence and accountability, as the regional presence would be supplemented by direct and formal

⁸ In the initial negotiations of the JPA a similar but narrower role was envisaged by JANET(UK) for each RNO. In the event this was dropped as the RNOs felt they would not be able to resource such activities.

links into JANET(UK). This latter is an aspect that has been missing in existing arrangements, as there is no formal mechanism for RNOs to act in this role. In practice there has been some engagement but this has been mainly of an informal nature and based on individual working relationships and arrangements.

- 4.7 Formal accountability for JANET services is to the JISC, via the JANET Service Description. Whilst this will remain the case in terms of accountability for the funds used, it is recognised that this also needs to be via a more direct route than this in matters of fitness for purpose of services. This is particularly the case after the change made last year to the JISC committee structure. And if there is in future a more diverse funding base, for example with greater institutional contribution to the costs of JANET on the basis of services used, then this too would need to change.
- 4.8 There may be a role for the new JANET Stakeholder Group in this process, as well its role in influencing JANET(UK) strategy. At present the Group is envisaged as constituted and structured on a sector basis, but it may be that a regional aspect to its work would also be appropriate.

Support

- 4.9 It is expected that the representational role would be supplemented by an increased programme of JANET awareness and briefing events mounted on a regional basis. Some would be briefings by JANET(UK) staff, but JANET(UK) would wish also to facilitate briefings by practitioners within the region on matters of communal interest.
- 4.10 It would seem best to organise these through existing regional structures where these are well established. It may be that JANET(UK) could provide logistic and financial support for these, either itself or on a partnership basis. It may also be appropriate to deliver some aspects through the *JANET Training* portfolio.

Regional Collaboration

- 4.11 A major part of the role of JANET(UK)'s regional representatives would be to assist in whatever way is appropriate in fostering regional collaboration, where the regional presence of JANET and its services have a part to play in that collaboration. Part of this would be to provide the links where needed into JANET national resources and strategies, with a view to improving the conditions for successful collaboration.
- 4.12 The degree to which this type of activity is either appropriate or welcome would inevitably vary strongly from region to region. Some aspects of regional collaboration will have little to do with JANET, and in these cases institutions might wish to take the lead but keep JANET(UK) informed of thinking. This is seen as another important aspect of the regional representation role.

Implementation

- 4.13 It is expected that implementation of the principles outlined above is likely to vary in detail from region to region. A final regional structure for these activities has not yet been decided, but will need to balance the need to maintain this diversity against the practicalities of covering a region and the affordability of the staff and other resources required.
- 4.14 Against this background, the regional structure provisionally envisaged is of six regions within England, plus one region within each of the other countries. One possible regional structure is illustrated in the map opposite.



- 4.15 Note that it is not intended that this regional structure necessarily maps directly onto the physical regional network structure that might be in place within a region.
- 4.16 Changing structures for regional engagement is inevitably a lengthy process, because of the need to identify the most appropriate new ways of working as operational changes take place. JANET(UK) has experience to date of a number of regions where this has taken place to varying degrees. (Of these, Wales is the furthest advanced, as outlined in the case study below.⁹) But the intention would be to implement these structures across the UK as soon as is practicable, rather than to do so only at the time changes are made to operational delivery in a region. Improved engagement is seen as a key part of JANET(UK)'s corporate development from 2010 onwards, to ensure it can serve institutions better over the coming years.

Case Study: the PSBA Network in Wales



In Wales, the North and South Wales MANs were replaced in 2007 by the PSBA Network as a result of a planning and procurement process in which individuals and groups from both the HE and FE sectors and JANET(UK) were closely involved. The structure and management of funding changed with this. Instead of JANET(UK) funding the two RNOs for operational services, it now contributes funding to the PSBA network via a funding agreement with the Welsh Assembly Government. This agreement covers JANET operational requirements in terms of performance and overall network architecture.

To maintain regional engagement with HE and FE JANET(UK) modified the JPA it had with Welsh Networking Ltd (WNL – the operator of the South Wales MAN) so that the latter continues to provide what are essentially the regional support and engagement services described above.

The revised agreement also provided for WNL appointees alongside JANET(UK) appointees to a number of the PSBA management groups, including the Management Board which oversees management of the Welsh Assembly Government's contract with the PSBA Network supplier. JANET(UK) has recently taken over chairmanship of the Management Board, as part of its policy of ensuring that higher and further education plays a full role in development of the PSBA.

More recently, and under JANET(UK) sponsorship, the individual providing regional support and engagement through WNL is being seconded into the PSBA Team within the Welsh Assembly Government, with a specific higher and further education liaison role. In this way the sector will be able to understand better some of the benefits coming out of the PSBA programme, and also be able to influence more directly service developments within the PSBA. Alongside this WNL and JANET(UK) continue to work together and with the JANET funding bodies in Wales to move existing sector liaison structures into the new PSBA world, and as part of a new tri-partite sector, PSBA, and JANET relationship.

The structures that have been developed in Wales are clearly tailored to the circumstances pertaining there, and are unlikely in themselves to be applicable elsewhere. But they serve to illustrate the underlying process: identification of what needs to change to meet changing circumstances, and working in partnership to effect that change. JANET(UK) believes that by putting adequate resource into the regional engagement aspect of its overall activities it will be possible to develop structures fit for purpose within each of the regions it serves.

⁹ In the East of England regional engagement has in practice been only at times of major change, although this is expected to change with the roll-out of a wider regional network in 2010. In the West Midlands it is still too early for this aspect to have yet settled after the introduction of the new network, coupled with staff changes in a number of the institutions and other organisations involved.

5 Re-Engineering the Operational Model

- 5.1 JANET(UK) believes that regional delivery of services is an essential part of JANET and intends that the overall architecture of national backbone and regional delivery networks should remain in place. It also believes that existing telecommunications infrastructure, whilst it remains fit for purpose and cost-effective, should be retained wherever possible. The operational question is how best to deliver JANET services, primarily the IP service, via regional networks and their infrastructure.
- 5.2 In answering this it is necessary to draw a balance between on the one hand standardising the delivery model completely, with no regional variation, and on the other allowing different delivery models in different regions. The former would result in better cost control and lower costs due to the economies of scale which would ensue. The latter would allow more scope for local custom and practice and might allow for more innovative approaches to delivery when and where opportunities arise.

Management Regimes

- 5.3 Against this background JANET(UK) has developed the following guidelines in attempting to manage this balance. It sees a need conceptually for three categories of management regime as follows.
- *“In-house”*: where JANET(UK) procures, manages and operates the regional network itself. The primary purpose would be to deliver JANET to HE and FE in the region, both in terms of JISC-funded services and potentially other services (such as additional connectivity or network management services) which individual institutions may wish to purchase. As now, other public-sector customers might also purchase services, particularly connectivity. Eastnet, TVN and WMRN are existing examples of this approach, and AbMAN at its request will also fall into this category.
 - *“Public-Sector Network”* where JANET(UK) becomes a partner in a public-sector joint procurement of a regional network shared between all. The resulting network would almost certainly be operated by a commercial supplier procured by the partnership. (If the other partners wanted JANET(UK) to operate the network, it would be no different operationally to the “In-house” regime above, albeit there would probably be a different political and governance framework around this.) The existing example of this is the PSBA Network in Wales.
 - *“Outsourcing”* where JANET(UK) agrees with another body that the latter will provide the regional network. This could be to a contractor responsible for only part of overall operation, with JANET(UK) retaining some functions in-house, or it could be complete outsourcing. The contractor could be a commercial company, or could be a public-sector organisation. The JPA is clearly an existing example of the latter – and of complete outsourcing.
- 5.4 The options appraisal suggested that in the majority of cases the in-house regime would be the preference on operational grounds, in lieu of any other circumstances. The public-sector network regime represents a significant political and management investment, and is only likely to be used where there are very strong non-operational reasons for doing so.¹⁰
- 5.5 The options appraisal also suggests that complete outsourcing to the commercial market would not be attractive. Earlier experience in some regional networks

¹⁰ For the PSBA Network the reasons are political and economic. The PSBA initiative is a key element of the Welsh Assembly Government’s public services policy and Welsh HE and FE needs to respond that policy. The PSBA Network is also the only affordable way for the sector to acquire the high bandwidth national network it needs, due to the large-scale aggregation of demand and funding involved. Much of the management effort involved has been to ensure the sector retains sufficient influence and control over the technical architecture and operational delivery of the network.

supports this: services cannot then easily be customised to education and research needs. The options appraisal suggests that a mixture of in-house delivery with some limited outsourcing on the open market may be more attractive.

5.6 However, there may be reasons for not following the in-house route and for considering outsourcing to a regional entity akin to a present RNO. The following guidelines have been drafted as an aid to making this decision. For outsourcing to be a consideration, at least one of the following would need to apply.

- There is a sound economic reason for the regional transmission infrastructure to be procured and the resulting contract owned and managed by the regional entity rather than by JANET(UK). For example, the infrastructure may be shared between different funding partners, or its special nature makes it uneconomic for JANET(UK) itself to procure and manage it.
- There is a sound economic reason for IP operation to be placed with the regional entity rather than with JANET(UK). For example, IP services might be supplied to other than JANET customers and it is uneconomic or operationally infeasible to split the IP operation between JANET(UK) and another operator.
- There are additional services being provided in the region of significant and measurable value to HE or FE, and it is uneconomic or operationally infeasible either for JANET(UK) to provide them or to disaggregate the operation of these from the operation of the IP or transmission services.

5.7 It is important to note the economic test built into the guidelines above. In practice this means that there will need to be cost savings to the JANET budget commensurate with, or better than, those that could reasonably be expected if the operation were taken in-house.

Procurement Considerations

5.8 If JANET(UK) were to continue to outsource any aspect of operational delivery it would have to do so in compliance with public procurement regulations. These require that, if a service above the prevailing threshold of contract value is to be outsourced and there is a market for it, it must be procured by open competition. Legal advice is that the services defined by the JPA would fall into this category, and that simply awarding them to an RNO (or any other economic operator) without open competition would not be in compliance with the regulations as they stand.

5.9 However, there is also a body of case law which allows a contracting authority (the public body purchasing the services) to award a contract without competition if the service provider is a very particular type of entity. The following need to apply:

- the service provider must be carrying out the principal part of its activities for the contracting authority (i.e. it cannot have other significant customers); and
- the contracting authority must exercise the same kind of control over the service provider as it might do over its own departments; and
- there must be no private-sector ownership of the service provider, nor any intention that there should be such ownership.

5.10 This case law (known as the “Teckal” exception) was established in 1999 and has subsequently been built upon. Its applicability is to circumstances where a public body has set up a special-purpose vehicle to carry out certain activities on its behalf. An incorporated RNO could be an example of this. Subsequent case law has established that the service provider can be controlled by and provide services to a group of public bodies who have come together for this purpose. Again this could apply to an incorporated RNO. It is difficult to see that this would apply to an unincorporated RNO as the principle of control is unlikely to apply to the relationship between the members and the legal entity acting for the consortium.

5.11 If there is a case for JANET(UK) continuing to outsource to a RNO for the reasons outlined above, the Teckal exception may be an appropriate route, provided that

JANET(UK) could be shown to be exercising this level of control, in conjunction with other public bodies where appropriate.. However, this would require significant change to the management of the RNO to demonstrate that the appropriate control was being exercised by the public bodies involved – and it would only apply to an incorporated RNO. The alternative and possibly less problematic route would be for JANET(UK) to use open competition, and for the RNO to tender against the market.¹¹ Whether a RNO would wish to do so is a separate question.

Implementation

- 5.12 To move forward JANET(UK) proposes now to agree with each RNO the operational delivery regime that should apply to its region. It will use the guidelines above in doing so.
- 5.13 If the agreement is that JANET(UK) will take operations in-house, it will as part of this process agree a transition plan. The form of this plan will need to be tailored to the circumstances of each RNO, but will as a minimum need to include the headlines listed below.
- 5.14 If it is agreed that outsourcing to the RNO should continue then a similar transition plan will also need to be agreed, but the key decision will be around JANET(UK)'s procurement strategy. If the provisions of the Teckal exception are to be used, the plan will need to concentrate on the changes to the RNO's management structure that would be required. Further study is required in this area.

Proposed Elements of a Transition Plan

1. Overall timing for the transition, taking account of natural break-points such as the procurement cycle of the regional backbone.
2. Any assignment of supply contracts from the RNO to JANET(UK), or if appropriate their replacement by JANET(UK) contracts.
3. Any re-procurement needed; whether this will be undertaken as a joint activity between the RNO and JANET(UK); and the arrangements for institutional involvement in the process.
4. The disposition of any services not covered by the JPA.
5. TUPE provisions and any other staffing issues.
6. Costs of the transition and any reimbursements over and above the payments already committed under the JPA.
7. A plan for joint RNO and JANET(UK) consultation with the institutions served by the regional network to ensure that the proposed transition causes as little disruption as possible.
8. An ongoing communications plan for the transition.

¹¹ It has been suggested that the funding councils could simply grant funds direct to individual RNOs to circumvent the need for procurement. Whether they have the power to do so to an incorporated RNO without exercising the level of control that the Teckal exception requires would be a matter for legal opinion. But in practice it is not a route that either the JISC or JANET(UK) would wish to use, for operational reasons. It also would not on its own solve the problem of directing separate funding streams into a RNO, for example where it is serving more than HE and FE.

Appendix 1: **Announcement of Strategic Direction (July 2009)**

Background

1. JANET(UK)'s stated mission is to support UK competitiveness and learning by delivering information and communication technology services to enable research and education.
2. The continued positioning of JANET as a leading-edge network supporting the whole of the UK's education and research community remains a critical need to all JANET user sectors. This applies whether in support of the UK's world-class research base or of best practice in the application of ICT to education in a wide range of situations.
3. Feedback from JANET(UK)'s customers consistently indicates that they value and rely on the high levels of performance, reliability and support that JANET delivers. They also wish to see timely development of existing services and an expansion of the range of services to meet their future needs. They ask that JANET(UK) is flexible and responsive in meeting these future requirements, so that leading-edge services continue to be delivered seamlessly across the whole of the UK.
4. At the same time, JANET(UK)'s funders increasingly look to it to continue to deliver, and find ways to improve, value for money. In the current economic climate it is prudent to expect severe, possibly unprecedented, pressure on public funding in the coming years. Although JANET is widely regarded as an essential part of the UK's education and research infrastructure, there is already pressure on the JANET budget. This comes at a time when JANET is expanding, both in the number of users it serves and levels and range of use.
5. Against this background, JANET(UK) has recently completed its latest, internal review of its mechanisms for delivery of individual connections, a process it conducts every three to four years, and last undertaken in 2006.

Review of Regional Delivery

6. At the present time regional delivery accounts for over £20 million per annum or 40% of the JANET recurrent budget. The vast majority of individual connections are provisioned via a regional network. The arrangements vary from region to region across the UK, but over 600 connections (approximately 75% of the total) are delivered via a set of fourteen regional networks formed by consortia of universities and colleges. Three regional networks, two of which were formerly operated by such consortia, are now by agreement run by JANET(UK) itself.
7. Except where JANET(UK) operates a regional network itself or other arrangements apply (such as in Wales), engagement with such regional networks is via a contract between JANET(UK) and the operator of the regional network. This is currently known as the JANET Partner Agreement (“**JPA**”) and has been running in various forms for nearly a decade. Through the JPA the regional network operator provides JANET(UK) with the services it needs to deliver each JANET connection within that region. The network operators are part of the JANET supply chain to individual connected organisations.
8. This review, carried out by JANET(UK), has concentrated upon structural aspects of the regional delivery model and not the performance of the operators of the regional networks. Service levels delivered by the operators regularly meet or exceed those specified in the JPA. This review has instead considered the implications of future needs as outlined above, and the changes that might need to be made to the JANET regional delivery model as a consequence.
9. While there are regional variations JANET(UK) finds that there are underlying structural inefficiencies embodied in the JPA model that work against the need for improved flexibility, responsiveness, consistency of service provision and value for money in JANET regional delivery.

10. This leads to:
 - i. an extended delivery chain (from working through a third party),
 - ii. sub-optimal procurement (as a result of disaggregation) and
 - iii. duplicated management of supply contracts (due to the additional layer of contract management inherent in the JPA model.)
11. In particular it hinders the maintenance of a coherent technical architecture for JANET as a whole. Finally, there are increasing regulatory risks associated with the JPA framework as currently implemented and these need to be addressed.
12. JANET(UK) has as a result concluded that the JPA model, in its current form, cannot continue to provide the necessary increases in efficiency and responsiveness in delivering JANET going forward. Therefore JANET(UK) will over time move regional delivery of JANET away from the JPA model and towards a more direct delivery model operated by JANET(UK) itself, with outsourcing as and when required to complement its own resources.

Consultation

13. This has been an internal review and addressing the structural issues outlined above will inevitably require significant change to regional delivery models. JANET(UK) will now embark on a programme of consultation, both with those individual customer organisations potentially affected and with individual regional network operators, to determine the optimal means of implementing this change.
14. Regional network operators may offer additional services (other than JANET connectivity) to their connected organisations and in some cases to the wider community. JANET(UK) will consult individually with connected organisations to understand their views as to what additional services they value and would wish JANET(UK) to consider when further developing its strategy in this area.
15. JANET(UK) will also consult regional network operators individually, with a view to agreeing in each case an outline strategy and associated timescales for making any changes relevant to delivery of JANET services within that region.
16. JANET(UK) will complete these consultations by mid-autumn.

Implementation

17. In carrying out any subsequent implementation, JANET(UK) will adopt the following five general guidelines.
 - i. It will manage change so as to maintain continuity of JANET services delivery within each region.
 - ii. It will continue to provide where required – and subject to the necessary funding being available – additional connectivity above the single JANET connection provided under JISC funding, along with other operational services offered by the regional network operator where it is operationally and economically viable to do so.
 - iii. It will, to the extent possible, seek to preserve the collateral benefits of regional delivery, such as the informal advice and assistance that a number of operators of regional networks provide to organisations within their catchment areas.
 - iv. It will establish mechanisms to ensure that users of JANET have, at the organisational level appropriate means of articulating their strategic requirements, and in this way contributing to the formulation of future JANET policy, products and services and their implementation.
 - v. It will manage change so that the regional network consortia do not incur unfunded liabilities where these have reasonably accrued as a result of carrying out their obligations within the term of the JPA.

Appendix 2: Options Appraisal – Narrative Assessment

Terms used in the assessment

The following is a glossary of the main terms used in the assessment.

Improved response to customer requirements is the need for JANET(UK) to have a clear understanding of customer requirements, and to be able to respond positively to these requirements in a timely manner through its regional delivery channel.

National coherence refers to a coherent technical architecture, enabling IP service delivery to be performed consistently across the entire JANET network. From this base a universal service standard can be delivered, ensuring equality of opportunity for all users of the network. It also increases responsiveness to new demands as the time and costs of implementation can be reduced.

Improved customer relationship management will be an ongoing programme of engagement between JANET(UK) and its customers at a day-to-day operational level and also at a level where more strategic engagement can occur, concerning current and developing issues and requirements.

Cost effective use of infrastructure is a requirement to maximise the value extracted from regional networks. Generally, RNOs have a good track record of obtaining value for money from procurements.

Improved opportunities for aggregation will occur when JANET(UK) can increase the size of particular procurements and obtain enhanced discounts. This will apply particularly to the purchase and maintenance of network equipment. Whilst delivery of network services will continue to be provided regionally, there will be opportunities to save money via the aggregation of access link procurements and the creation of larger regional demand by bringing in other public-sector regional partners where appropriate.

Reduction in JANET(UK) management overhead is the requirement to reduce the staff effort required to manage a number of processes, including provisioning, fault management, planning, procurement and supply contract management.

Continuous improvement in quality refers to continuous and incremental improvements to processes to ensure that the network continues to meet the changing demands of its customer base, remains fit for purpose and provides value for money. JANET(UK) already has a culture of continual improvement embedded within its ISO 9000 quality system.

Management framework stability results from a regional delivery mechanism which can be put in place and remain substantially unaltered over a prolonged period of time, while allowing the degree of operational flexibility necessary to develop, procure and deploy new network infrastructures, technologies and services as required.

Current JANET Partner Agreement	
This option implies retention of the <i>status quo</i> . The current set of regional networks operating under the existing JPA contract would be continued, with JANET managing and operating the remaining regions directly.	
Improved response to customer requirements	<p>Although there has been improvement with the move from RPAN to JPA, there still needs to be a more consistent means of rolling out new services and responding to other customer demands.¹²</p> <p>The JPA needs to be treated as a supply contract between JANET(UK) as customer, and the RNO as supplier. It is difficult to see how this cultural issue can be addressed within any contract where the contractor is also a customer.</p>
National coherence	Collective negotiation of current contract has resulted in a degree of service standardisation. The technical architecture is well understood but end to end coherence is difficult to achieve due to differences in operating models across the RNOs.
Improved customer relationship management	RNOs provide some local support to customers and this level of support varies between regions. Customers are often confused as to which organisation, JANET(UK) or the RNO, should be providing services.
Cost effective use of infrastructure	The RNOs display an ethos of maximising public funding investment. The JPA contract's cost control mechanisms support this.
Improved opportunities for aggregation	The number of separate RNOs makes aggregation across a range of equipment and services more difficult to achieve.
Reduction in JANET(UK) management overhead	Operation of the JPA contract will continue to require significant day-to-day operational and political management due to the structural issues embedded in the model.
Continuous improvement in quality	Some improvement in deliverables possible assuming continued JANET contract management effort to maintain momentum. The negotiation of a single national contract provides little incentive for individual RNOs to exceed contractual requirements.
Management framework stability	Difficult to let a long term JPA because the basic contract would require regular modification to remain fit for purpose. The process of modification would require high levels of management overhead.
Risk reduction	While the existing contracts can not be challenged, there would be a significant regulatory risk if modified contracts were not put out to tender.

¹² The fact that only four RNOs in England were prepared to implement the Managed Router Service is an illustration of a resulting inefficiency, as JANET(UK) now has to run two delivery models. Similar difficulties were encountered in implementing connections to Halls of Residence in a consistent manner.

Enhanced JANET Partner Agreement	
This option envisages that JANET(UK) would negotiate enhancements to the JPA contracts on an individual basis with each RNO. The changes would be designed to meet the majority of JANET(UK)'s objectives for delivery of JANET service.	
Improved response to customer requirements	Individual contract negotiation should provide opportunity for improvement. However, it is likely that difficulties caused by the duality where the RNO is both a customer and a contractor would remain.
National coherence	Is likely to reduce compared to present arrangement, because individual contract negotiations may lead to differing levels of RNO performance.
Improved customer relationship management	It will be difficult to obtain fully the desired clarity of customer perception, even with major revision of the JPA.
Cost effective use of infrastructure	Existing good performance in this area should be enhanced via individual contract negotiation.
Improved opportunities for aggregation	Greater use of national frameworks for access links, equipment and maintenance will help. Staff effort should be reduced by central provisioning from frameworks. Significant aggregation would probably only be achieved if there are fewer and larger RNOs.
Reduction in JANET(UK) management overhead	This option would lead to a greater number of individually negotiated and managed contracts, thus increasing, rather than reducing the management overhead.
Continuous improvement in quality	Some improvement in deliverables may be possible assuming continued high levels of JANET(UK) contract management effort.
Management framework stability	Difficult to let a long term enhanced JPA because the basic contract will still require regular modification to remain fit for purpose. The negotiation of contracts individually would exacerbate this.
Risk reduction	Procurement risk is increased as a result of the material change to existing contracts unless these were procured on the open market.

Public Sector Procurement	
<p>This option envisages JANET(UK) joining a large-scale aggregated procurement involving other parts of the public sector than tertiary education. The presumption is that such an activity would not be led by JANET(UK), but that it would be sufficiently influential in the governance of the initiative that it could ensure a reasonable match of the services procured to higher and further education requirements</p>	
Improved response to customer requirements	Differing requirements from several different sectors would be likely to reduce the ability of the aggregated network to fully meet all JANET customer requirements.
National coherence	Unlikely to be UK wide, due to devolved administration differences. JANET requirements would also be diluted.
Improved customer relationship management	Improvements to JANET(UK)'s relationship with its customers would be difficult because a third party contractor would be working between JANET(UK) and the customers in all regional delivery matters.
Cost effective use of infrastructure	Value for money should improve due to better "sweating of the assets" across the different sectors comprising the customer base for the regional network.
Improved opportunities for aggregation	It should be possible to maximise aggregation advantages so long as the scale of the network is large enough.
Reduction in JANET(UK) management overhead	Setting up the contract will be a complex undertaking requiring significant senior management effort. Once established, the operational management overhead should reduce, but this may take a long time.
Continuous improvement in quality	Should be able to enforce more stringent contract terms on the supplier by virtue of a large contract. However this may be mitigated by difficulties in getting all the partners to present a united front to the contractor.
Management framework stability	These types of aggregation are relatively new, so stability is unlikely at present.
Risk reduction	Procurement risk is reduced. Commercial risks are reduced as they are shared between several sectors. Risk to JANET funding model is reduced because it would be politically difficult for funding bodies to withdraw from this kind of arrangement once established.

Standalone Regional Networks	
<p>This option envisages JANET(UK) operating just the JANET backbone network and delivering services only as far as the regional network entry points. JANET(UK) would relinquish responsibility for regional delivery. Each RNO would be accountable for onward delivery of JANET service to the institutions in its region. In this scenario, JPA contracts would be terminated and not replaced with any direct contractual arrangements between JANET(UK) and the RNOs.</p>	
Improved response to customer requirements	Dependent on each individual RNO's capability to understand customer needs and to respond to them while maintaining influence over national standards and priorities.
National coherence	Difficult to achieve without a strong central controlling body to hold contracts with each RNO.
Improved customer relationship management	There would no longer be a single body responsible for delivery of JANET service to the end customer. May vary across sectors from region to region, depending on the priorities of each regional operator.
Cost effective use of infrastructure	Given RNO culture, it should be possible to achieve value for money through long term contracts if security of funding is offered.
Improved opportunities for aggregation	It is likely that costs will increase as a result of disaggregation.
Reduction in JANET(UK) management overhead	There will be much less to manage.
Continuous improvement in quality	Performance of individual RNOs will vary. If JANET(UK) is not providing national consistency via the JPA or a similar mechanism, some other national mechanism would need to be found. Failing this, each institution would have to address this, either individually or on a regional basis. May disadvantage less politically powerful institutions within the region
Management framework stability	Pressure for change as a result of regional differences suggests this arrangement is unlikely to be stable over a long period.
Risk reduction	Procurement risk to JANET(UK) is removed but sector commercial and procurement risk may be increased without the liability protections enjoyed by individual RNOs under the JPA. ¹³

¹³ In the past JANET(UK) has used its financial power to deal with changes to RNO budgets as they have arisen. This has been through formal terms in the JPA, such as annual benchmarking of costs and a mechanism for funding upgrades, as well as from time to time meeting unforeseen costs as they have arisen. An individual regional operator may not have this protection outside the JPA.

Open Procurement	
This option envisages JANET(UK) procuring managed service(s) from commercial supplier(s) for provision of regional networking infrastructure and service on the open market and using standard procurement processes in accordance with the public procurement regulations. The service provided would be determined by what the market offers, and how service is provided would be determined by individual suppliers.	
Improved response to customer requirements	Early adoption of new technology will be difficult as commercial products lag behind the leading edge. Experience suggests costs would scale badly with bandwidth demand, in part due to lack of transparency of the supplier's underlying cost base.
National coherence	Possible, but probably only fully with a single supplier. However, with the use of only the small number of suppliers envisaged in this model, it may be easier to achieve than with the present number of contracted RNOs.
Improved customer relationship management	Would not improve JANET(UK)'s relationship with customers. A third party contractor would be working between JANET(UK) and its customers.
Cost effective use of infrastructure	Some improvement possible through the letting of longer term supply contracts.
Improved opportunities for aggregation	Only if the number of suppliers is minimised. One supplier is ideal for aggregation, but more suppliers would improve competition.
Reduction in JANET(UK) management overhead	Will simplify the management arrangements, as the result would be standard commercial contracts.
Continuous improvement in quality	A commercial contract implies inertia, or may result in significant additional costs to enable change and flexibility. The overall level of spend may give some opportunity for mandating improvement.
Management framework stability	A stable contract framework could be envisaged but experience indicates that long-term managed-service contracts do not provide good value for money in the later years of the contract. Some churn will therefore be necessary.
Risk reduction	Reduction of procurement risk. Having one or a few suppliers implies increased commercial risk. This degree of outsourcing may increase the risk to the JANET funding model if it becomes perceived that the commercial market can supply the whole of JANET.

Sub-contracted Operation	
This option envisages JANET (UK) procuring and owning the regional network infrastructure, probably based upon fewer and larger regional aggregations, but sub-contracting all management and operation of the regional networks to one or more third parties and via procurement on the open market.	
Improved response to customer requirements	Early adoption of technology will be easier than with the “open procurement” option. Experience suggests that the technical capabilities of the contractor may mitigate against this to some extent. Costs should scale better with bandwidth demand than with the “open procurement” option as there would be greater transparency of the underlying cost base.
National coherence	Possible, but probably only fully with a single contractor. However, with the use of only the small number of suppliers envisaged in this model, it may be easier to achieve than with the present number of contractors.
Improved customer relationship management	Would not improve JANET(UK)’s profile with customers. A third party would be working between JANET(UK) and its customers.
Cost effective use of infrastructure	Improvement possible with long term supply contracts. Use of infrastructure within JANET(UK)’s control since it owns the infrastructure and technology.
Improved opportunities for aggregation	Infrastructure and technology procurements can be aggregated. Some duplication of effort may be reduced, but not eliminated unless there is a single contractor.
Reduction in JANET(UK) management overhead	Fewer and possibly longer term contracts to manage should reduce JANET(UK) overhead.
Continuous improvement in quality	JANET(UK) has control over technology and infrastructure, so has the ability to introduce improvements. Should be possible to choose a contractor with appropriate quality systems in place.
Management framework stability	A stable contract framework could be created but would still be susceptible to changes in contractor commercial models.
Risk reduction	Reduction of procurement risk. A small number of contractors carries increased commercial risk. Risk to JANET funding model is lower as the network can more easily be kept at the leading edge.

JANET(UK) Operation	
<p>This option envisages JANET procuring, owning, managing and operating the entire regional network infrastructure, subcontracting some routine or specialist aspects of the operation where appropriate. It envisages this being the case throughout the UK (with the exception of the PSBA in Wales). JANET(UK) would therefore be responsible for design, procurement, installation and subsequent operation of the regional network and its associated infrastructure supply contracts</p>	
Improved response to customer requirements	JANET(UK) can respond directly to changing customer requirements without the need to negotiate contractual changes. There would be complete ownership of the cost base by JANET(UK) and therefore it should be able to scale efficiently to increasing demand. ¹⁴
National coherence	Should be achievable with JANET(UK) alone controlling the product/service offering and the management of the underlying infrastructures.
Improved customer relationship management	JANET(UK) would have direct control over customer relationships. A local regional presence should ensure that the level of good community relations built by the RNOs is at least retained. JANET(UK) will develop enhancements to the way it interacts with the community to further improve upon these relationships
Cost effective use of infrastructure	Should be achievable via long term contracts with suppliers, and appropriate deployment of technology under JANET(UK) control.
Improved opportunities for aggregation	Offers opportunities to align procurements across multiple regions and education sectors, as well as aggregating equipment and telecommunications purchasing across the whole of JANET.
Reduction in JANET(UK) management overhead	Initially, there would be significantly more management effort involved in the establishment and integration of regional staffing. However over time, the level of management effort will be lower than under the JPA.
Continuous improvement in quality	JANET(UK) has a culture of continual improvement embedded within the ISO 9000 quality system.
Management framework stability	With suitable supplier contracts, this option offers a stable management framework.
Risk reduction	Reduces procurement risk. A new risk is introduced, JANET(UK)'s ability to increase and maintain the appropriate levels of staffing.

¹⁴ This was illustrated in the re-procurement of the West Midlands Regional Network referred to in Chapter 2.

Appendix 3: Respondents' Comments by Category & Frequency

Quality of service delivery	
Loss of local support	22
Reduction in service quality	13
Loss of customer focus	10
JANET(UK)'s operations and provisioning is less effective than the RNOs'	9
Risk associated with transition	2
Weakening of the JANET Service Description	1
Retention of range of services available regionally	
Loss of resilient or secondary circuits	17
Loss of extra services	11
Threat to "third stream" activities	9
Threat to shared services	8
Loss of assistance with design and procurement	7
Retention of regional collaboration	
Loss of collaborative forum	12
Loss of regional agenda	12
Loss of local control/influence	11
Loss of local knowledge	9
Control of the cost base	
Increase in costs	13
Uncertainty, leading to planning blight	5
Should result in a rebate to the JANET network charge to HEIs	4
JANET(UK) is a monopoly supplier	3
Lack of funding transparency	2
Loss of aggregated savings through joint procurement	2
Loss of sponsored connection income	1
Evidence of need for change to the delivery model	
Lack of evidence of need for change or detail of change proposed	20
Benefits to JANET(UK) are evident, but not those to customers	6
Lack of technical coherence is the fault of JANET(UK), not the RNOs	1
JANET(UK) should manage underperforming RNOs more robustly	1
RNOs are effective; RBCs should be the focus of JANET(UK)'s attention	1
Consultation issues	
Lack of prior consultation	19
Did not get Tim Marshall's e-letter	3