

North Lanarkshire Council Report

Finance and Resources Committee

Does this report require to be approved? Yes No

Ref KH/GR/TD01

Date 26/02/25

Connectivity Programme – Wide Area Network Project Completion

From Katrina Hassell, Chief Officer (Business and Digital)

E-mail HassellK@northlan.gov.uk **Telephone** 07903 096121

Executive Summary

The Connectivity Programme was created to improve connectivity across the Council estate and in so doing provide benefit to residents and businesses by influencing the connectivity market through introducing fibre-based service across the region. Latest statistics illustrate the Council's programme has been successful, with fibre now available to 49.5% of premises, (up from <3% in 2021).

An important aspect of the programme was the modernising of the Council's Wide Area Network (WAN), associated edge security and Internet access. The report summarises the delivery of this aspect of the programme, highlights the improvements in place and considers future use and enhancements.

Recommendations

It is recommended that the Finance and Resource Committee:

- (1) Acknowledge the content of this report providing detail on the successful completion of the Connectivity Programme Wide Area Network project.

The Plan for North Lanarkshire

Priority	Improve economic opportunities and outcomes
Ambition statement	(18) Ensure our digital transformation is responsive to all people's needs and enable access to the services they need
Programme of Work	Digital North Lanarkshire

1. Background

- 1.1 Following extensive market research, a PIN notice and a negotiated tender process, the Council awarded a Framework Agreement to Commsworld Ltd, for an initial period of 180 months (15 years), further reserving the right to extend the Agreement for additional periods up to a maximum of a further 60 months (5 years). The value of the Framework Agreement shall not exceed One Hundred and Fifty Million Pounds Sterling (£150,000,000) exclusive of VAT.
- 1.2 Between February 2022 and time of report, contracts to the value of c£25M have been awarded via the Framework to cover delivery of an all-new, infinitely scalable, ultra-fast fibre backbone network; improved internet capacity across the schools and corporate networks; provision of perimeter firewall capability; a new schools web filtering solution; and a public wi-fi service covering schools, libraries, leisure centres, town centres and public facing corporate buildings.
- 1.3 Prior to the work of the connectivity programme, the previous wide area network, provided by Virgin Media, relied upon core nodes located in Council buildings linked via high bandwidth fibre rings. Local sites then connected to these core nodes through a local 'star and ring' topology. Individual site bandwidth varied from a low 10Mb up to 1Gb.
- 1.4 The Wide Area Network is used to move data traffic between sites but also to and from Internet based services. Previously this relied upon several individual Internet connections with specific data traffic directed to specific connections. Overall Internet connectivity was a combined 15Gb.
- 1.5 All internet traffic must pass through security appliances such as Firewalls, with internet browsing also needing to pass through web-filtering technology. Although these tools are critical for securing the Councils network, they can also 'choke' its performance and/or become single points of failure. Our new solution was therefore designed to mitigate these known issues.
- 1.6 The Council has previously operated a separate CCTV network. An ambition of this project was to consolidate these networks where such was appropriate.
- 1.7 The Commsworld solution – a new, infinitely scalable, ultra-fast fibre backbone network in excess of 320km across North Lanarkshire – delivers all required Services to the Council and also enables future services by building a digital infrastructure that will provide benefit to the community i.e. Full Fibre to the Home (FTTH), high-capacity services to the business community and the lifeline for future technologies such as 5G.
- 1.8 The design replaces the previous reliance upon council sites as aggregator nodes with each site now instead connected on fibre to Commsworld's MPLS (Multi-protocol Label Switching) core network.

2. Report

- 2.1 The previous network supplier, Virgin Media, network design relied upon a ring of 12 node sites providing a network backbone to all council sites. All data and traffic were routed via this 10Gb ring back to the NLC data centres in Motherwell Civic Centre and Data Vita (Chapelhall). The nature of this design created issues for the Council as it looked to rationalise and refresh its building infrastructure. Similar impacts were also felt during local power outages.

- 2.2 The connectivity programme has enabled the Council to implement an infinitely scalable, ultra-fast fibre backbone network based on MPLS technology that removes the reliance on core nodes, allowing data and traffic to go direct to the internet where required.
- 2.3 The programme included the upgrade of bandwidth at all sites with a base provision of 1GB per site whilst high schools and key corporate sites were provisioned with 5GB resilient connections with the ability to increase to 10Gb if required.
- 2.4 Internet bandwidth has been increased significantly for all schools with 60Gb of internet capacity provided as part of a cloud provision and a further 2 central 10Gb resilient internet connections available as a backup via the Motherwell and Data Vita data centres.
- 2.5 Cloud based perimeter firewalls were introduced to replace the existing on prem end of life hardware. The solution incorporates DDOS (Direct Denial of Service) mitigation, a common cyber-attack that threat actors use to overload an organisation's service to take them offline. It does this through identifying an attack is underway and diverts the traffic away from the target into an internet 'dead end'.
- 2.6 The new firewalls also included a school's web filtering solution to help improve the security for staff and pupils accessing the internet from North Lanarkshire schools.
- 2.7 The introduction of the new Commsworld network has allowed the integration of the CCTV network with the corporate network meaning both now run on the same infrastructure, though logically separated into their own domains. This offers the potential opportunity to provide a CCTV service to more council locations without the need to add additional network infrastructure. To date over 70 cameras have been delivered via the combined aspect of the network.

WAN Delivery

- 2.8 Starting in March 2022, the connectivity programme delivered 320km of fibre into the ground across North Lanarkshire connecting 314 council sites with 342 network circuits. 13 CCTV sites were connected to the same network. This work was originally planned to be completed by July 2023, however due to experiencing a significantly greater volume of duct blockages than expected within existing Open Reach infrastructure the delivery date was extended to June 2024, although this mainly consisted of small number of services with specific challenges.
- 2.9 Support work completed to deliver the new network included site surveys, asbestos checks, cabinet and power installations, cabling installations and infrastructure hardware upgrades across the council estate.
- 2.10 The timeline for programme completion was impacted by the reliance on multiple third parties to complete various aspects of the support work, the process around asbestos checking in particular can introduce significant delay. This complexity has been noted in lessons learned to ensure the support required for any future developments of this nature are better understood.

Future Use

- 2.11 The Commsworld contract is a 15-year partnership aimed at the initial upgrade of the corporate network as detailed above. It does however also provide significant

opportunity to bring new IoT technologies online without concern on the network impact and security.

- 2.12 The new design offers the opportunity to manage specialist technologies more securely ensuring they don't impact the core network.
- 2.13 The ultra-fast fibre backbone is scalable meaning that bandwidth can be increased more easily to support future demands on the network. This is particularly true as more line of business systems move to the cloud as SaaS (Software as a Service) services.

Contract Cost Details

- 2.14 The new contract and network, internet, firewall and web filtering provision has resulted in a revenue cost reduction of approx. one third of the annual network costs (£1,2M), with such used to deliver approved budget savings for the Business and Digital service.

Performance

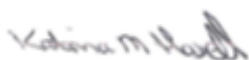
- 2.15 The increase in site bandwidth and internet access is considerable; monitoring of the network identifies that typical combined usage during peak working day is <8GB:
Typical non-secondary AVG: 50MB PK 200MB
Typical secondary AVG: 70MB PK 670MB
- 2.16 Internet traffic typically runs at < 10% of capacity.
- 2.17 Stability of the platform has been a key benefit with no major outages experienced to date; local outages where they have arisen can predominately be attributed to local power issues or external damage to cabling through infrastructure works.

3. Measures of success

- 3.1 Improved connectivity at all sites resulting in a reduction of service calls regarding system access and performance.
- 3.2 A reduction in digital exclusion due to the introduction of a public Wi-Fi service available across North Lanarkshire.
- 3.3 The ability to provide a secure internet connection for IoT devices using existing infrastructure.
- 3.4 Cost savings against previous supplier contracts.

4. Supporting documentation

None.



Katrina Hassell
Chief Officer (Business and Digital)

5. Impacts

<p>5.1 Public Sector Equality Duty and Fairer Scotland Duty Does the report contain information that has an impact as a result of the Public Sector Equality Duty and/or Fairer Scotland Duty? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the impact?</p> <p>If Yes, has an assessment been carried out and published on the council's website? https://www.northlanarkshire.gov.uk/your-community/equalities/equality-and-fairer-scotland-duty-impact-assessments Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<p>5.2 Financial impact Does the report contain any financial impacts? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Paragraph 2.14 above highlights the financial savings realised through the delivery of this contract. If Yes, have all relevant financial impacts been discussed and agreed with Finance? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes, please provide a brief summary of the impact?</p>
<p>5.3 HR policy impact Does the report contain any HR policy or procedure impacts? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, have all relevant HR impacts been discussed and agreed with People Resources? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please provide a brief summary of the impact?</p>
<p>5.4 Legal impact Does the report contain any legal impacts (such as general legal matters, statutory considerations (including employment law considerations), or new legislation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, have all relevant legal impacts been discussed and agreed with Legal and Democratic? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please provide a brief summary of the impact?</p>
<p>5.5 Data protection impact Does the report / project / practice contain or involve the processing of personal data? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, is the processing of this personal data likely to result in a high risk to the data subject? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, has a Data Protection Impact Assessment (DPIA) been carried out and e-mailed to dataprotection@northlan.gov.uk Yes <input type="checkbox"/> No <input type="checkbox"/></p>

<p>5.6</p>	<p>Technology / Digital impact Does the report contain information that has an impact on either technology, digital transformation, service redesign / business change processes, data management, or connectivity / broadband / Wi-Fi? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes, please provide a brief summary of the impact? Several technical details are peppered throughout the report. These confirm that the Council's new connectivity solution was designed to successfully mitigate known performance and single point of failure issues. Where the impact identifies a requirement for significant technology change, has an assessment been carried out (or is scheduled to be carried out) by the Enterprise Architecture Governance Group (EAGG)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>5.7</p>	<p>Environmental / Carbon impact Does the report / project / practice contain information that has an impact on any environmental or carbon matters? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the impact?</p>
<p>5.8</p>	<p>Communications impact Does the report contain any information that has an impact on the council's communications activities? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the impact?</p>
<p>5.9</p>	<p>Risk impact Is there a risk impact? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the key risks and potential impacts, highlighting where the risk(s) are assessed and recorded (e.g. Corporate or Service or Project Risk Registers), and how they are managed?</p>
<p>5.10</p>	<p>Armed Forces Covenant Duty Does the report require to take due regard of the Armed Forces Covenant Duty (i.e. does it relate to healthcare, housing, or education services for in-Service or ex-Service personnel, or their families, or widow(er)s)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the provision which has been made to ensure there has been appropriate consideration of the particular needs of the Armed Forces community to make sure that they do not face disadvantage compared to other citizens in the provision of public services.</p>
<p>5.11</p>	<p>Children's rights and wellbeing impact Does the report contain any information regarding any council activity, service delivery, policy, or plan that has an impact on children and young people up to the age of 18, or on a specific group of these? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide a brief summary of the impact and the provision that has been made to ensure there has been appropriate consideration of the relevant Articles from the United Nations Convention on the Rights of the Child (UNCRC). If Yes, has a Children's Rights and Wellbeing Impact Assessment (CRWIA) been carried out? Yes <input type="checkbox"/> No <input type="checkbox"/></p>