

<b>VACANCY</b>	<b>Head of Network Management with DANTE based in Cambridge</b>
<b>Reporting to:</b>	Mark Johnston (CNOO), DANTE
<b>Reference:</b>	Head of Network Management - GN3PLUS14-334-34
<b><u>Vacancy Summary</u></b>	<p>The Head of Network Management is responsible and accountable for leading a team of engineers that design, plan, and manage the GÉANT network and has overall responsibility for network integrity. The team is responsible for all layers of the GÉANT network including the IP/MPLS and the DWDM platforms.</p> <p>The job holder manages colleagues that make up the Network Management team (currently four people) within Operations and could be requested to matrix manage colleagues that are not members of the Network Management team.</p>
<b><u>Expected amount of work</u></b>	1 FTE - no increase to headcount
<b><u>Main responsibilities</u></b>	<p>The Head of Network Management is responsible to ensure eight core activities are undertaken and delivered to an acceptable standard to ensure the integrity of the GÉANT network is maintained.</p> <ol style="list-style-type: none"> <li>1. Operating the Change Control Board which controls, assesses and approves all network maintenance activity and changes to service carrying network elements. This will mean taking over as main point of contact for supplier notifications from the Operations Centre.</li> <li>2. Managing the changing demands on network resources and undertaking audits and routines to ensure standards are being upheld to maintain the integrity of the network so it is never compromised beyond acceptable and agreed performance and availability levels. A key aspect to this is managing traffic flows and routing policy and auditing router configurations and running routine maintenance.</li> <li>3. Managing all circuit, service and equipment capacity such as; <ol style="list-style-type: none"> <li>a. IP routes – trunk, peering, upstream</li> <li>b. Transmission route capacity</li> <li>c. Route port, slot, switching fabric, processing utilisation, memory utilisation</li> </ol> </li> <li>4. Issuing capacity change requests to the Implementation team</li> <li>5. Working with the Implementation team to optimise capacity utilisation and costs</li> <li>6. Using network traffic, utilisation and performance data collaborates with the Chief Technical Officer to develop network roadmaps, taking a central role in the network evolution authority. The team maintains</li> </ol>

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	<p>and develops a set of utilisation and performance information using a combination of in-team and DANTE tools, models and systems.</p> <ol style="list-style-type: none"> <li>7. Leading on network service development activity.</li> <li>8. Providing the Network and Service Assurance team within the Operations Centre with specialist technical support to investigate complex network and service problems.</li> </ol> <p><b><u>Specific Responsibilities:</u></b></p> <ul style="list-style-type: none"> <li>• Designing, planning, documenting and deploying new services to network <ul style="list-style-type: none"> <li>○ Peering</li> <li>○ Netflow</li> <li>○ RTBH</li> <li>○ FOD</li> <li>○ MDVPN</li> <li>○ MPLS VPN</li> <li>○ VRF</li> <li>○ Logical systems</li> </ul> </li> <li>• Acting as final DANTE backstop with regard to technical questions</li> <li>• Liaising with vendors in resolution of bugs, implementation of RFCs, deployment of new technologies</li> <li>• Presenting project and network updates to the community</li> <li>• Understanding and implementing ITIL and PM principles</li> <li>• Testing and verifying new versions of the network operating system prior to deployment on the production network</li> <li>• Collaborating with other research and education entities for multi-domain services <ul style="list-style-type: none"> <li>○ LHCone</li> <li>○ ANA</li> <li>○ Global peering</li> </ul> </li> <li>• Working with DANTE IT regarding network infrastructure</li> <li>• Generating reports for other areas of the business for verification of services used</li> <li>• Managing lab resources</li> </ul> <p>The role is to be concerned with threats to the normal operation of the network. The Head of Network Management should plan accordingly to mitigate these threats to maintain the performance and efficient cost effective operation of the network. Maintaining stated delivery, reliability and availability SLAs and providing solutions to improve network assets and resource</p>

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	<p>utilisation will be key in this role. The Head of Network Management must ensure that the team will run potential failure scenarios to envisage results and have contingency plans in place with the Operations Centre for service restoration. The objective of the contingency plan should be to maintain the network's ability to deliver and maintain services even if compromised in the event of failure.</p> <p>Network traffic management will be a core function of the team. The Head of Network Management must ensure a set of tools and techniques enable the detecting, monitoring and controlling of network traffic to protect the network from abnormal loads, whilst at the same time optimising network performance to ensure high availability and delivery of services without degradation.</p> <p>The Head of Network Management will ensure the team:</p> <ul style="list-style-type: none"> <li>• apply intelligent analytics to measure and improve performance with baseline assessments to enable predictive planning; and</li> <li>• undertake and support configuration audits, change validation, monitoring and troubleshooting.</li> </ul> <p><b>On call working (set out any requirements or mark as not applicable):</b></p> <p>Not applicable.</p> <p><b>Shift working (set out any requirements or mark as not applicable):</b></p> <p>Not applicable.</p> <p><b>Extent of travel required to perform the role (indicate the area in which travel is required and the frequency):</b></p> <p>No more than two overseas trips per quarter.</p>
<p><b><u>Qualifications, Skills, Experience and Knowledge</u></b></p>	<ul style="list-style-type: none"> <li>• A degree in a scientific or technical subject (or equivalent experience) is essential.</li> </ul>
<p><u>Essential</u></p>	<p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Has a good understanding of the line coding supporting Ethernet.</li> <li>• Demonstrates a complete understanding, both practical and theoretical, of Q-in-Q (802.1 ad) and Mac-in-Mac (802.1 ah). Also has good</li> </ul>

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	<p>understanding of Ethernet frames. Has in-depth theoretical and practical experience of working with and implementing Ethernet OAM in a WAN environment. Demonstrates the ability to train others in all the topics related to Ethernet</p> <ul style="list-style-type: none"> <li>• Is able to draft and implement complex BGP policies. Has comprehensive experience in designing and implementing VRFs. Demonstrates a wider networking knowledge and advanced understanding of network services and technologies. Has a good understanding of the main monitoring tools and acts as a focal point within and outside the team. Champions best network practice by defining configuration templates and ensuring the quality of the document. Is able to train others on the theory and the GÉANT implementation of the different routing protocols and virtual infrastructure.</li> <li>• Demonstrates a good understanding of inter-AS VPN in its different flavours. Can carry out advanced debugging of all MPLS solutions. Is able to train others on the theory and the GÉANT implementation of the different protocols, their operation and the debugging process.</li> <li>• Demonstrates a full understanding of all fields in the IPv4 and IPv6 headers. Has expert knowledge of IP routing concepts and expert understanding of IP multicast. Demonstrates a full understanding of traffic engineering and IP class of service. Is able to investigate and diagnose IP problems of any kind. Is able to design and provide basic training in relation to IP.</li> <li>• Demonstrates a holistic understanding of how the network elements, protocols and hosts interact with the application and influence performance. Has an appreciation of how application requirements might place requirements on the network and conversely, the effect that the application might have on the network. Has an understanding of the role of other protocols to provide the services required by applications. Has experience in investigating, understanding and resolving network performance issues. Is able to design and provide basic training in relation to how the network elements, protocols and hosts interact with the application and influence network performance.</li> <li>• Is able to define the testing requirements, the required specifications, the link budgets, type of optics required and fibre type to build new transport sections on the DANTE network. Has the ability to define, depending on the network infrastructure, where to use coherent or non-coherent solutions.</li> </ul>

<b>VACANCY</b>	<b>Head of Network Management with DANTE based in Cambridge</b> <p>Is able to calculate the type of DCM used in the network to compensate for the CD shift. Has the ability to train and mentor DANTE staff in all areas of optical skills and to give laser safety lectures to all staff.</p> <ul style="list-style-type: none"> <li>• Acts as a subject matter expert in the optical field.</li> </ul> <p><b><u>Essential Key Skills</u></b></p> <p>In addition to the skills referred to above the following skills are key:</p> <ul style="list-style-type: none"> <li>• Demonstrates expert knowledge of upcoming technologies and acquires hands-on experience of some of these technologies.</li> <li>• Shares information with peers, produces reports on findings and makes recommendations for new innovations that can be applied within DANTE.</li> <li>• Develops solutions to complex network and infrastructure problems and requirements, assessing trade-offs between different elements of costs to find the most cost effective way of delivering IP and optical networks and e-infrastructure for the delivery of network connectivity and cloud based services.</li> <li>• Demonstrates leadership and can be seen as an expert in the planning, management and leadership of engineering staff and activity. In maintenance windows can lead complex continuous maintenance windows as part of a major network change project.</li> <li>• First-class written and spoken English.</li> </ul> <p>Excellent presentation and reporting skills.</p>
<b><u>Additional Information</u></b>	<p>The vacancy can be filled by either a direct employee of a GÉANT partner NREN or an employee of a subcontractor/third party to a GÉANT partner NREN.</p>
<b><u>Applications</u></b>	<p>Applicants should forward their CV and a covering letter/email to <a href="mailto:pmo@geant.net">pmo@geant.net</a> quoting the vacancy reference set out above. Deadline for applications is 10 November 2014.</p>