04-12-2024

Deliverable 4.4
Updated Above-the-Net Service Portfolio

Abstract

This deliverable provides an overview of the GÉANT Above-the-Net service portfolio as of November 2024 (Month 23 of GN5-1), outlining the aims of the Above-the-Net Services activity, the current service offerings, and anticipated future changes.

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The Deliverable D4.4 *Updated Above-the-Net Service Portfolio* provides an overview of the renewed GÉANT Above-the-Net service portfolio, the aim and the background of the Above-the-Net Services activity, the challenges faced, and the future prospects.

This document outlines the Above-the-Net service portfolio as of November 2024 (M23 of GN5-1), detailing current operational services and offerings, with planned updates anticipated after the OCRE 2024 Framework agreements are finalised later in 2024. GÉANT's Above-the-Net services aim to deliver scalable digital solutions that extend beyond core network services, providing tools and frameworks to support collaboration and enhance digital capabilities for the European research and education (R&E) community.

The Above-the-Net service portfolio combines commercially procured and community-driven services. The commercially procured services consist of the GÉANT Cloud Framework (OCRE), currently available in its second generation, OCRE 2020, and soon to be augmented by its successor, OCRE 2024. The community-driven offering currently comprises the eduMEET videoconferencing software platform.

Portfolio updates consist of the follow-on OCRE 2024 Cloud Framework and the spin-out evolution of the community software eduMEET.

The GÉANT Cloud Framework OCRE continues to deliver access to publicly procured framework contracts for a wide selection of commercial cloud services, of the type Infrastructure-as-a-Service and above (IaaS+). The new generation of the Cloud Framework (OCRE 2024) is expected to complete procurement in November 2024 and be ready for use by institutions in February 2025. The OCRE 2024 procurement leverages the collective bargaining power represented by GÉANT to deliver very advantageous terms and conditions to the eligible institutions belonging to GÉANT-member National Research and Education Networks (NRENs).

eduMEET development is currently transitioning from completely Project-funded into an independent open-source project mainly supported by the GÉANT community. At the current time this process is focussing on establishing an effective management structure and securing pathways for interested stakeholders to contribute to the development and maintenance of eduMEET under the oversight of the eduMEET Board under the umbrella of The Commons Conservancy (TCC). Additional work is aimed at developing workable models for interested stakeholders to contribute to the effort, either by donating employee time, infrastructure or money. The GÉANT Project will continue to fund some code maintenance and community coordination activities to enable continued community deployments and the growth of the user base.

The Above-the-Net Services activity supports and facilitates service delivery of both Cloud Framework and community services through a service delivery chain, where dedicated teams focus on supporting the commercial procurement and community development aspects. Alongside this is a communications team aiming to maintain a highly engaged dialogue with the NREN community on their requirements as well as disseminating the essential support information and documents needed to make service adoption as low-friction as possible for NRENs and their institutions. The delivery chain activity is constantly working to improve and optimise its support function for the R&E community.

1 Introduction

GÉANT Above-the-Net services represent a diverse portfolio of digital online solutions and services that go beyond the foundational GÉANT services around networking, security and trust & identity, towards addressing the more 'end-user' needs of the R&E community across Europe. WP4 manages the development and delivery of a number of Above-the-Net services to the NREN community and works to enable our NRENs in turn to deliver these services to their national institutions and users. To support this service delivery, WP4 maintains a number of complementary elements of a service delivery chain.

This service delivery chain is structured to support both NRENs and service providers, integrating demand-driven service development and procurement through the GÉANT Cloud Framework (OCRE) and its re-procurement via an EU tender, as well as within community service development initiatives. Activities include community service development, public procurement, day-to-day operational management of contract relations with suppliers, and communications with the NREN community for requirements gathering and service documentation delivery.

This document provides an overview of the current Above-the-Net service portfolio as of Q3 2024, including operational services and offerings, along with updates expected once the OCRE 2024 Framework agreements are signed in late 2024. At the time of the preparation of this document, the Framework evaluation phase had concluded, but the procurement results had not yet been published. This document also includes the related marketing and communication plans that deliver essential supporting information and points of contact to support the community with their service adoption.

2 Service Portfolio

The portfolio encompasses various community-based and commercial services that spring either from procurement, specific development, or independent community initiatives. The common thread is an intention to enhance collaboration and lower barriers to participation, while enabling institutions to maintain their desired levels of sovereignty over technology choices, infrastructure control and data. Key components of these services include cloud offerings, videoconferencing solutions, and other joint community developments, all aimed at fostering an interconnected R&E ecosystem.

2.1 GÉANT Cloud Framework

The GÉANT Cloud Framework, as part of the Above-the-Net services, is focused on providing robust and cost-effective cloud-based solutions to R&E institutions. This includes a range of publicly procured Framework Agreements for commercial Infrastructure-as-a-Service (IaaS) offerings that streamline procurement processes at NRENs and R&E institutions and offer enhanced conditions for users. The results of this procurement activity are delivered under the name GÉANT Cloud Framework (OCRE).

As the authorised public procurer for thousands of institutions across Europe, GÉANT aggregates demand for the public procurement of cloud services to ensure the R&E community's requirements are met by the market while securing optimal terms not available to individual institutions. The Frameworks have been very successful in fulfilling the demand for such services wherever it was expressed through the NRENs.

The initial GÉANT IaaS Framework, launched in 2016, marked a significant step toward the central procurement of cloud services for the European R&E community. The structured approach to IaaS procurement facilitated by the Framework led to increased participation from institutions and a substantial increase in turnover, experiencing consistent annual growth[1]. This success laid the foundation for broader participation and enhanced collaboration across the European R&E landscape, setting the stage for the transition to the OCRE 2020 IaaS+ Framework.

The availability of the second-generation OCRE 2020 IaaS+ Framework[2] (expanding the Framework beyond infrastructure to include Platform as a Service (PaaS) and Software as a Service (SaaS)) from December 2020 coincided with a dramatic increase in cloud service uptake within the European R&E community, with the annual 2021 spend on both Frameworks almost equalling the total of the preceding four years. The year-on-year growth since then approximates to 50% per annum.

The growth in consumption under the OCRE 2020 IaaS+ Framework has been driven significantly by the growth of usage in additional countries beyond the initial group of NRENs that comprised the bulk of 2016 Framework consumption. These growth numbers demonstrate national-level cloud procurement aggregation through the Frameworks, indicating the progress of more NRENs in becoming cloud-procurement pathways for their national communities. Several more countries are making significant steps in growth relative to their previously modest or even non-existent levels of purchasing aggregation.

Of the 39 NRENs that joined the OCRE 2020 IaaS+ Framework procurement, 28 are in countries fully compliant with the EU procurement directive (either EU member states or sufficiently aligned on procurement legislation, e.g. Norway, UK and Switzerland) and are therefore able to consume with no obstacles. Of these, all 28 reported Framework usage in 2023, meaning a 100% coverage of the directly addressable market at the time. The remaining 11 NRENs are mostly in non-EU countries that face some additional procurement hurdles around making use of the Framework. The GÉANT procurement team is continually supporting NRENs with bespoke

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[1] As of 1st October 2024, the 2016 Framework is fully expired and no longer part of ongoing operational support activities.

[2] The tender for the 2020 IaaS+ Framework was run by the Open Clouds for Research Environments (OCRE) project [OCRE].

efforts to secure national procurement compatibility (publishing tenders in national procurement portals, securing letters of support from relevant ministries, etc.), but no general-purpose solutions have been forthcoming. Progress is being made, but in many countries, real progress depends on national legislation alignment.

Those NRENs that are channelling their institutions' cloud purchases through the OCRE Framework are delivering significant value to those institutions in the form of effort and time saved on procurement and access to discounts negotiated by the GÉANT procurement team. Cost reductions of this order are the result of leveraging the collective bargaining power represented by the GÉANT Association, and are unachievable by any single institution. The Framework therefore saves taxpayer money across Europe and acts as a force multiplier on the societal and scientific impacts of the R&E sector by both improving research and education outcomes and saving time and effort that would otherwise be spent on individual procurement processes. The value of the OCRE Framework and the NRENs' value-add is most visible to those institutions that have developed a cloud-inclusive IT procurement and service management practice and can optimally exploit the Framework benefits.

The previous four years (2020–2023) have seen an incredible acceleration in the development and adoption of advanced digital services and platforms. This shift seems now to be solidifying also in research and education, with demand for high-quality and high-performance digital services in R&E here to stay. The COVID-19 pandemic demonstrated the value of online digital services and communications platforms in enabling distributed collaboration – in short, the value of cloud-based services. As the IT service facilitators for R&E, NRENs have both the opportunity and responsibility to continuously drive towards best value of the services provided to R&E institutions. This will require a reassessment and recalibration of where the finite resources of NRENs and their institutions are best applied to maximise the outcomes of research and education.

Similar priorities have been expressed within the NREN community. Partly because of this endorsement, the GÉANT Cloud Framework is being publicly procured for its third iteration, OCRE 2024. The new agreements are being signed in late 2024 and will be available for purchasing from February 2025, aiming to address growing needs in the areas of digital autonomy, data sovereignty, and streamlined public procurement.

The OCRE 2020 Framework Agreements expire after 30 November 2024, and that is also the last day where new call-offs may be signed. Existing call-offs may remain valid up to four years, even beyond the Framework expiry date, and will continue to be supported by the GÉANT Cloud team.

2.2 eduMEET

eduMEET is a community-developed software platform for secure and reliable web-based videoconferencing, tailored specifically to the needs of the R&E community via features such as Moodle integration and federated login functionality, including eduGAIN. The platform serves as a cost-effective alternative to commercial videoconferencing solutions for those that can operate the required infrastructure, while thereby also ensuring data privacy and security. This innovative platform enables institutions to self-deploy customizable videoconferencing services with a modern user experience that just works in users' browser without any client software installation, promoting ease of access and user-friendliness. eduMEET development grew up in the Above-the-Net activity over previous generations of GÉANT projects and has now matured to the point where serious community-wide interest in adoption is accumulating.

By facilitating collaboration across diverse user groups—including the R&E community, media and arts sectors, NRENs, and integrators—eduMEET effectively supports a wide range of digital communication needs.

The advantages of using eduMEET are:

- Open-source software with community support.
- Locally hosted instances, providing full control for users.
- Secure communication within trusted networks.
- Trustworthiness, keeping audio-visual traffic within GÉANT and NREN networks as much as possible.
- Low costs compared to commercial solutions.
- Ease of use, requiring no client-side installation of custom applications or plugins.

While eduMEET was designed to support the entire GÉANT community, it is particularly relevant for four user groups:

- **R&E community:** Aiding in daily work and facilitating international research collaboration.
- **Media and arts:** Serving as an easy-to-use collaboration platform for remote education and live art performances.
- **NRENs:** Acting as a videoconferencing service provider for national research and education networks.
- **Integrators:** Supporting creators and developers of integrated solutions (e.g., educational platforms) where videoconferencing tools are an essential component (e.g., Moodle).

In GN5-1, the eduMEET activity aims to pilot a process that enables project-internal software developments to stand independently beyond the GÉANT Project, focusing on business model development and product sustainability. This first pilot "spin-out" applies these principles to transition eduMEET videoconferencing into a self-sustaining, community-supported open-source project while documenting the lessons learned. More information is available at [eduMEET].

The Above-the-Net Services activity aims to remain engaged with eduMEET development and facilitate the NREN community's requirements and future needs. The activity will also continue supporting maintenance of the maturity, quality, and security of the eduMEET source code, ensuring the reliability and sustainability of services based on this open-source software product.

3 Updated Service Portfolio

Several activities in the GN5-1 project have delivered significant updates to the Above-the-Net service portfolio (or are on course to do so) at the time of writing. The main update comes in the form of the new third-generation GÉANT Cloud Framework, OCRE 2024. Next to the updated OCRE 2024 Framework, the eduMEET development activity is continuing its progress of evolving from a purely Project-funded activity into a self-governed and community-supported sustainable effort, while also delivering further functional updates to the software itself.

The following section outlines the updates made to the service portfolio in more detail.

3.1 GÉANT Cloud Frameworks (OCRE)

The series of GÉANT Cloud Frameworks follows the pattern of publicly procured framework agreements, in that the primary Framework Agreements have a validity period of four years, and any call-off signed may itself also be valid for up to four years beyond the Framework duration. Therefore, the service delivery activity for the

Cloud Framework follows a multi-year cycle of parallel procurement and support activities for at least two overlapping Framework generations.

Procurement for the GÉANT Cloud Framework OCRE 2024 is on schedule to be completed by the end of GN5-1 (late 2024), having occupied a significant share of WP4 resources in 2023–2024, and will be available for user institutions in early 2025 (see Section 3.1.4 for more detail). As a first for these Frameworks, it will be valid for five years.

3.1.1 Uptake of the Frameworks

The following graphs illustrate the growth of GÉANT Cloud Frameworks' consumption since the first Framework became available in 2017. (Note that the *2024* bars only cover the first six months of the year, to the end of June 2024.)

Of particular note in Figure 3.1 is the annual spend of EUR 46 million in 2021 – an increase of 130% and almost equalling the prior four years combined. This was likely due to a combination of the wider array of services available under the IaaS+ Framework that became available that year, and the COVID-19 pandemic leading to growth in demand for remote working/studying and distributed collaboration solutions based on cloud services.

Equally impressive is the growth since, reaching a record high of EUR 98 million in 2023, the last period for which a full year's data is available. This trend appears healthy in Figure 3.2 and is likely to continue in the years ahead as the 990 institutions involved (as illustrated in Figure 3.3) begin consuming the new OCRE 2024 Framework.
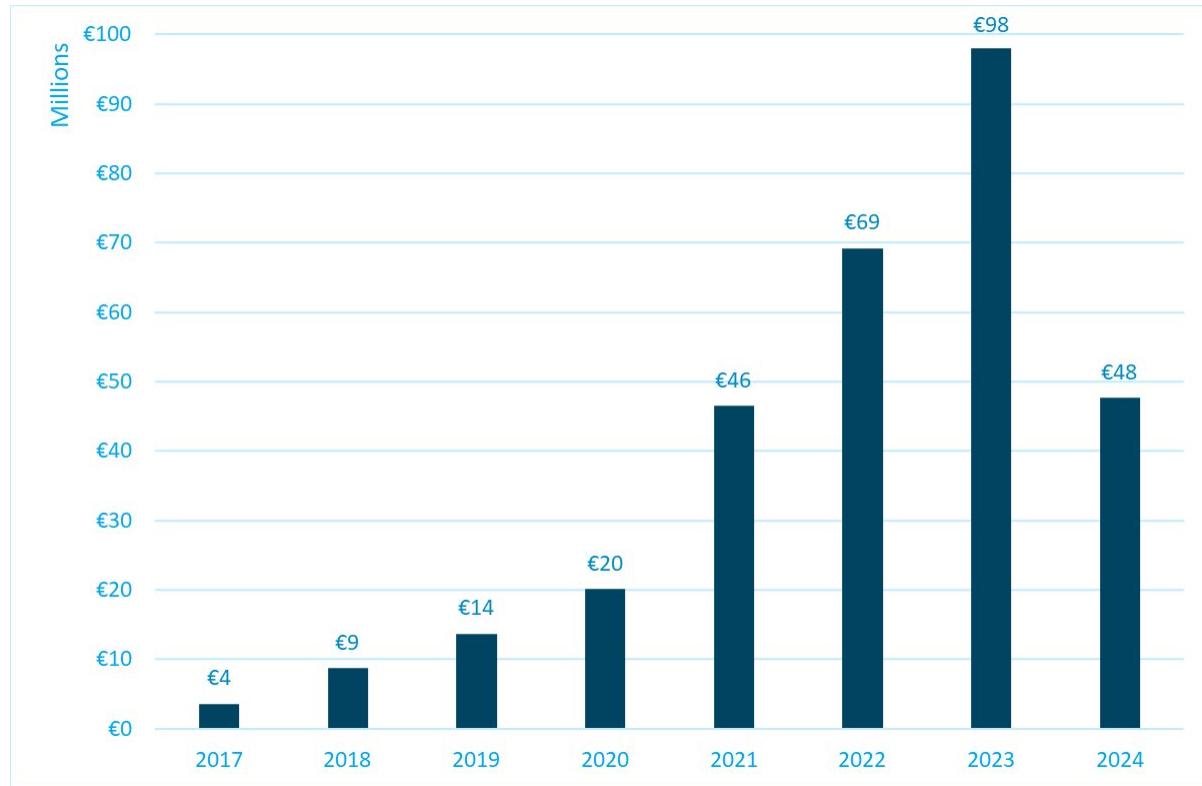
Figure 3.1: Annual cloud service consumption through the 2016 IaaS and 2020 IaaS+ Frameworks. The 2024 value is €48M to the end of June 2024
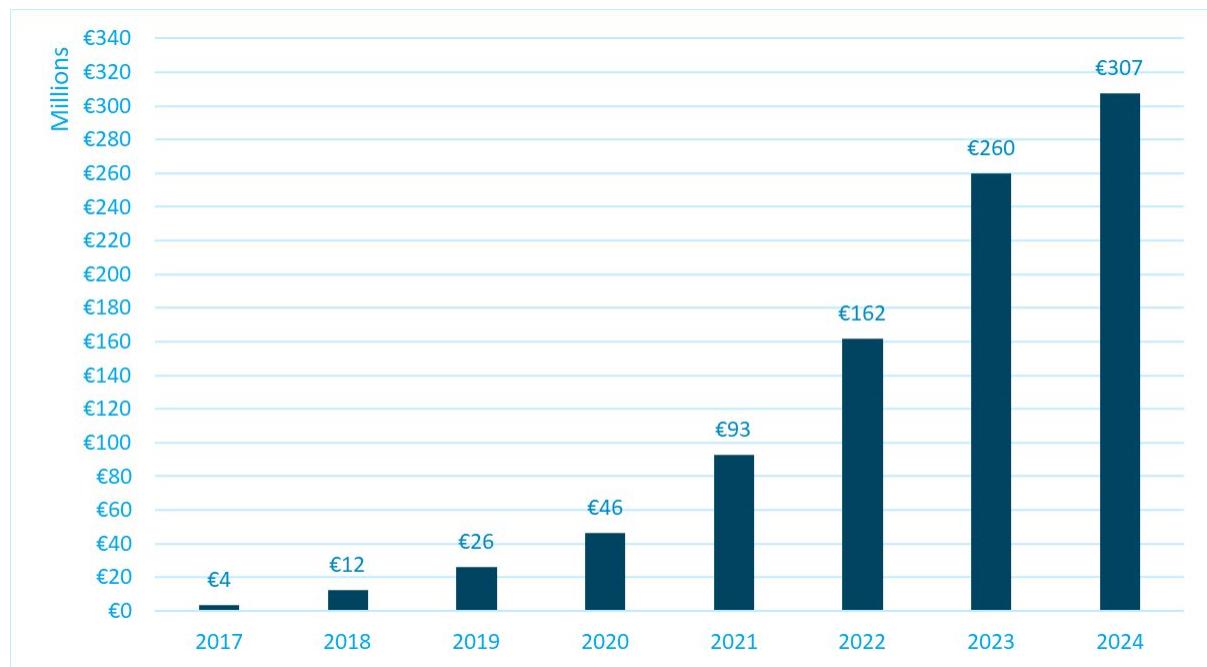
Figure 3.2: Cumulative cloud service consumption through the 2016 IaaS and 2020 IaaS+ Frameworks. The 2024 value is €307M from 2017 to the end of June 2024
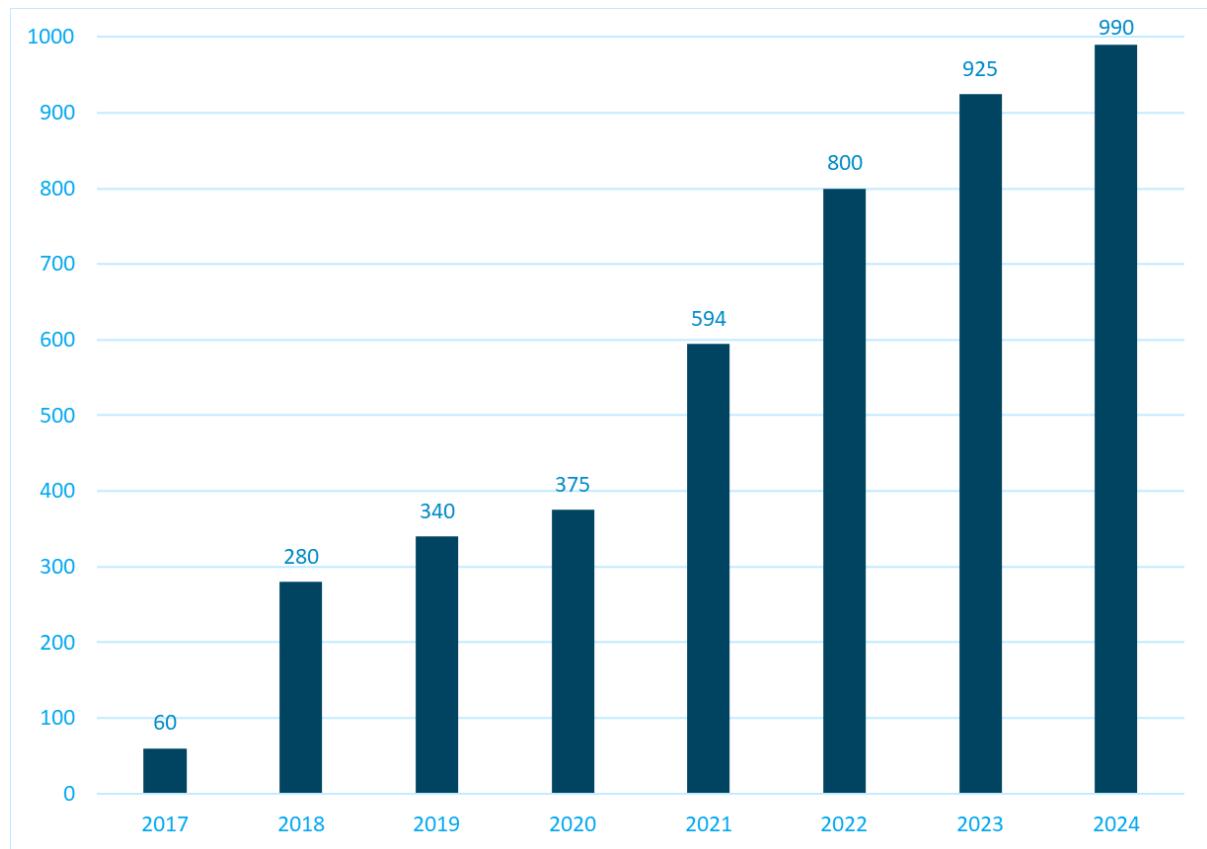

Figure 3.3: Cumulative number of institutions that have used the 2016 IaaS and 2020 IaaS+ Frameworks call-off contracts. The 2024 value is 990 from 2017 to the end of June 2024

3.1.2 End of support of GÉANT 2016 IaaS Framework

Since the 2016 IaaS Framework Agreements ended on 31 December 2020, and the latest time to sign new 4-year call-offs was 30 September 2020, any remaining 2016 call-offs have now expired as of October 2024. That means that the 2016 Framework is now fully passed and no longer part of ongoing operational support activities and no longer contributes to ongoing Framework consumption reporting.

3.1.3 Maintenance of OCRE 2020 Framework Call-off Agreements

The OCRE 2020 Framework Agreements expire after 30 November 2024, and that is also the last day where new call-offs may be signed. Assuming the maximum duration of call-offs is four years, operational support and reported consumption may continue through November 2028. Experience shows that a rapid transition of existing users to the newest Framework (OCRE 2024) can be expected upon availability in 2025, but support for continued usage of OCRE 2020 will be available and provided for as long as needed.

3.1.4 OCRE 2024 Framework

Building on the success of the OCRE 2020 IaaS+ Framework, GÉANT is in the final stages of public procurement for the third iteration, the OCRE 2024 Framework. The evaluation of all bids has been successfully completed, and the Framework is expected to be signed by the end of November 2024. This new iteration aims to significantly expand the range of services available to the R&E community, further expanding the PaaS and SaaS offerings alongside the existing IaaS services.

The OCRE 2024 Framework is designed to enhance the options available for R&E institutions and encourage greater participation from a broader spectrum of countries. By facilitating access to a more diverse array of cloud services, GÉANT seeks to empower institutions to optimize their digital strategies and respond effectively to the evolving needs of the sector.

As the signing of the Framework approaches, GÉANT is committed to ensuring a seamless transition for all participating institutions, reinforcing its role as a central purchasing body and a vital resource for navigating cloud procurement challenges in Europe. The anticipated Framework will not only streamline access to cloud services but also bolster collaboration and innovation within the European R&E community.

The new OCRE 2024 services will be visible in the new OCRE Cloud Catalogue, which will be available on the GÉANT Clouds website after Framework contract signatures are completed, at [GÉANT Clouds].

3.2 eduMEET Software

The spin-out model for eduMEET is designed to transition the platform into an independent, community-supported open-source project, promoting technological sovereignty and positioning it as an alternative to commercial video-conferencing solutions.

To support this goal, significant changes have been made to the service:

- A completely new version of the eduMEET webRTC infrastructure tool (4.0) was rewritten from scratch and released, including Docker Hub releases.
- Promotional materials were updated (e.g., the website), and correspondence via eduMEET mailing lists and the GitHub channel continued. A Discord channel was established to facilitate easier communication for OSS volunteers.
- Hosting of the eduMEET service for the GÉANT Project participants, including the demo version of eduMEET v4.0, was continued and maintained by KIFÜ.

The implementation of eduMEET v4.0 (both client and server-side) has continued since the beginning of 2024. The main objectives of this extensive effort are:

- To implement a platform architecture that enables configurable federation across community deployments for mutual interoperability, resource sharing, and resiliency.
- To make the code easier to understand and more flexible.
- To make implementation easier for newcomers (optimising the time required for implementation), which will be beneficial when eduMEET is made fully open source.

eduMEET v4.0 boasts a new and refreshed user interface and benefits from the implementation of familiar features of modern videoconferencing solutions, including room management functionality, improved scalability, communication between eduMEET instances, improved background blur, and a management platform and engines for easy translations into new languages.

Two security audits were performed by the GÉANT Secure Code Team to assess the maturity and security of eduMEET version 4. This collaboration has proven beneficial for both parties; the eduMEET team continues to support the Secure Code Team by ensuring the continuity of cooperation (through a rolling-releases approach) and by confirming audit results (including reports, shortened reports and badges).

Another valuable intra-project collaboration relates to PR efforts. The team received support in communication, content preparation, outreach to institutions and organisations, and in defining a consistent message for external communication.

Manpower changes occurred as some key developers left, with one replacement added, and the increased workload placed additional pressure on the current team. A new member from GARR joined the eduMEET team, and new volunteers for open-source collaboration became involved in GN5-1, significantly aiding the development process.

3.2.1 Uptake of eduMEET Software

The team has concentrated on promoting and supporting eduMEET through extensive communication and technical outreach using mailing lists, Slack, GitHub, technical meetings, and business development initiatives. An eduMEET webpage has been created under TCC, and discussions with NRENs, including SURF, continue around potential financial sponsorships. WP4 and eduMEET representatives also engaged with the TCC Board for collaboration.

eduMEET has been actively presented at WP4 Cloud Forum, SIG-CISS, TNC23, TNC24, and other key workshops and conferences. Updated documentation has been released and eduMEET articles were featured in CONNECT Magazine, with WP4 continuously supporting NRENs in evaluating and gathering information on eduMEET.

Throughout the reporting period to M22, eduMEET has seen continuous uptake, with deployments in 16 countries across Europe and 5 outside of the continent. There is also interest from African alliances and other open-source projects, potentially further expanding eduMEET's reach. Additionally, the German NREN DFN, which uses its own self-hosted national videoconferencing service DFNconf, is evaluating eduMEET and promoting it within its community, while an internal GÉANT instance is being developed for internal evaluations and meetings.

3.2.2 Spin-Out Process

The eduMEET spin-out is making continued progress, with vocal support and interest from the community, but still faces challenges with sustainable funding and governance. Continued collaboration with NRENs and potential sponsors will be critical in ensuring the project's success and furthering its impact within the R&E sector. The number of eduMEET sponsors, both in-kind and financial, has increased to four organisations, along with individual volunteers.

3.2.2.1 The Aim and Motivation of Spin-Out

The eduMEET spin-out process aims to establish an independent, open-source project model that allows GÉANT-developed software to evolve with the support and governance of the broader R&E community, while freeing up resources in the funded project for the next generation of innovations. This approach fosters technological sovereignty and emphasises sustainable business frameworks among NREN partners, positioning eduMEET as a viable alternative to commercial video conferencing solutions for some community members.

This shift in eduMEET's relationship with the GÉANT Project reflects a growing collaboration with NRENs and other stakeholders to support the platform's operational needs and enhance its adoption. This change enables GÉANT to focus more on facilitation while promoting community-driven contributions and governance for eduMEET. Recent activities have included establishing communication channels, supporting adoption initiatives, and organising events to drive engagement, alongside exploring significant partnerships with potential sponsors and international collaborators.

3.2.2.2 Completed Activity

From the end of January 2024, the launch of eduMEET version 4 significantly raised community awareness and interest in its capabilities. This heightened profile contributed to a wave of support for greater collaboration among NRENs, with several showing interest in using eduMEET for national services. NRENs without immediate applications for the service have expressed a desire to support its development and contribute to technological sovereignty, indicating a robust community commitment to the spin-out's objectives. As part of the spin-out strategy, the governance model has evolved to incorporate stakeholders actively by forming an Open Source Programme under The Commons Conservancy Foundation, including core NRENs in the eduMEET governance board, and researching potential pathways for financial contributions.

The team has actively engaged with potential sponsors, including RIPE, NLnet, FundPro, SIDN Fund, NGI, and the Vietsch Foundation, to secure ongoing support while closely coordinating with NRENs like DFN and SURF to expand eduMEET's user base. Progress includes outreach efforts and technical support initiatives, such as providing installation assistance to DFN and SURF and collaborating with NORDUnet to secure additional nodes.

3.2.2.3   Challenges

Challenges persist for eduMEET, particularly regarding future funding and resource needs. Some NRENs hosting critical eduMEET activities have expressed concerns about maintaining their roles without financial support, highlighting the need for a structured funding strategy to boost resources effectively. It has been decided that project funding will primarily support eduMEET software maintenance, with new feature development handled outside the project budget. Although eduMEET is not expected to be fully self-funded beyond its spin-off by the end of 2024, project funding can serve as a resource multiplier, with some NRENs willing to commit more resources if partial funding is available. Additionally, several NRENs currently evaluating eduMEET could contribute by expanding its user base and use-case diversity, potentially evolving into core supporters. Even NRENs unable to contribute technically have shown interest in supporting community development and technology sovereignty through financial contributions, and pathways to facilitate this support should be established.

3.2.3   Project-Funded Stability Maintenance

Before the GN5-1 project began, one of the goals was to pilot a spin-out of a GÉANT community-developed service, with eduMEET as an example, funded entirely outside of the project. During GN5-1, it became apparent that the previously quite informal eduMEET development organisation could not yet sustain the demanding conditions of an external funding environment. As a result, it was decided that after the GN5-1 project, the maintenance of the software will still be funded by the next project, to keep it viable for the continued growth of community adoption. Further feature development activities will proceed outside of the project and need community initiative and resources to be forthcoming.

3.2.4   Coordination of NREN Federation Efforts

While eduMEET is in principle open and freely available to anyone, adoption within the GÉANT community is of main interest to the Above-the-Net Services activity. In the context of NRENs, an interesting model of eduMEET adoption is one of a federated and interoperable deployment, meaning that the sovereign national deployments of individual NRENs could be configured to technically inter-operate with each other and could even serve as load-balancing or availability backups for each other. This distributed service model would enable the use of very large meetings in eduMEET and increase system uptime, as external nodes would be able to take over in case of failure.

The technical mechanisms for this pan-European model of eduMEET service operation are already in place in principle; the adoption of this model requires the creation of agreements with NRENs, the resolution of any legal issues, and the configuration of individual eduMEET nodes. There is effort in GN5-2 WP4 dedicated to exploring this kind of federated rollout model.

4   Marketing and Communications

The team has built and cultivated an engaged community of NREN representatives and has worked to get them assigned a formal mandate by their NRENS to act as Cloud Service Delivery Managers (CSDM). At certain intervals, a strategic interaction with CTO-level decision makers at NRENs is also convened for more forward-looking conversations. Through this community and its channels, the GÉANT Cloud team provides NRENs with the tools, information, and support needed to effectively deliver Above-the-Net services to their institutions. This includes coordinating service delivery, maintaining documentation, and offering a helpdesk. They also provide training to help institutions transition to the cloud and use WP4 services efficiently.

4.1   Services Support

4.1.1   GÉANT Above-the-Net Community Management

The team manages a comprehensive community of NREN representatives as part of the support structure for Above-the-Net services, which includes both CSDMs and Cloud Strategy Group members (such as CTOs).

Task 1 oversees a helpdesk dedicated to NRENs, while Task 2 runs a business desk for suppliers and framework contracts through its Contract Management Group.

Regular communications include bi-weekly forums for CSDMs and Strategy Group members, annual Above-the-Net CTO workshops and joint workshops with EUNIS Special Interest Group on Cloud Management (university cloud contacts), as well as webinars and infoshares. The team also manages the GÉANT Clouds website and additional resources to support ongoing engagement and information sharing.

4.2   Collaboration

WP4 collaborates closely with other GÉANT teams, various GÉANT Special Interest Groups (SIGs) and Task Forces, and global partners to advance its mission and broaden eduMEET's reach. Through regular engagement with SIGs like SIG-CISS, SIG-Multimedia, SIG-MSP, and SIG-Marcomms, WP4 fosters a collaborative environment for knowledge sharing and project alignment. Partnering with EUNIS's SIG Cloud Management, WP4 co-hosts annual or bi-annual workshops to address shared challenges and innovations in cloud and above-the-net service management. Beyond Europe, WP4 also collaborates with NRENs like Japan's NII/SINET in quarterly meetings and engages other global NRENs to expand its services adoption. Leveraging GÉANT's unique authority to represent thousands of European institutions, WP4 maximises its collaborative potential and international impact.

4.3 Communication Channels

The team uses regular communication channels to inform the community (NRENs and institutions), including the website, CONNECT newsletter, and individual meetings with the NRENs.

4.3.1 GÉANT Cloud Website

The GÉANT Cloud team maintains the GÉANT Clouds website, which contains the following information:

- Current activity and background of the GÉANT Above-the-Net services.
- Contacts for the GÉANT Cloud team, NREN cloud contacts and the eduMEET team.
- The Cloud Catalogue.
- A tool for generating Cloud offers.
- eduMEET information.
- Success stories.
- News and events information.
- Communication materials such as the IaaS Framework Cookbook and a data classification tool.

4.3.1.1 Cloud Catalogue

The advent of the OCRE 2024 Framework will also see the per-country awarded Framework Agreements being made accessible in the Cloud Catalogue on the GÉANT Clouds webpage [GÉANT Clouds]. Due to factors like service availability and the volume of data to process before publishing, the Cloud Catalogue will be built in two phases:

- **Phase 1:** The catalogue will be organised by country (from the list of 39 NRENs participating in the Framework), with available platforms and suppliers visible for each one, similar to the 2016 IaaS and OCRE 2020 Frameworks. The basic Cloud Catalogue is set to be published on the GÉANT Clouds webpage after the GN5-1 project concludes (January 2025).
- **Phase 2:** Based on the tender results and the data, the catalogue may expand to allow service-based searches across suppliers who have signed the Framework agreement with GÉANT. The advanced Cloud Catalogue is expected to be available on GÉANT Clouds webpage in future years (tentatively 2026).

4.3.1.2 OCRE 2024 Gateway

Having successfully implemented an automated contract-document delivery platform (then known as 'Marketplace') for the OCRE 2020 Framework, the team plans to maintain a similar tool for delivering document packages to interested parties for the OCRE 2024 Framework. This tool is an automated form that generates document requests, including an offer and a document detailing the call-off contract signing process, along with contact details of the local CSDM in the requestor's country. The request is sent to the relevant in-country CSDM, who must approve it as it contains sensitive and confidential information. Following community feedback about the name 'Marketplace' and the expectations it raises, the decision was made to rebrand the service as 'OCRE 2024 Gateway' to more clearly differentiate the actual function from that of other familiar marketplaces, such as app stores.

4.3.2 Events

The team organises various events that serve as communication channels with the Above-the-Net communities. These include bi-weekly forums for the NREN CSDMs and the Cloud Strategy Group members, as well as CTO and roadmap workshops, webinars, and infoshares on the Frameworks and other specific topics. Additionally, the team presents at events organised by other GÉANT teams and organisations, such as regional and national conferences (e.g., NORDUnet conference or NREN events) or topic-specific gatherings, like the Network Performing Arts Production Workshop (NPAPW) for eduMEET presentations.

4.3.2.1 Bi-weekly Forum

Bi-weekly Forums for NREN CSDMs and the Cloud Strategy Group members serve as the primary channel for maintaining the GÉANT Above-the-Net community together.

4.3.2.2 Webinars, Infoshares and Other Workshops

The team organises topic- and audience-specific webinars, infoshares, and workshops. Topics covered include Frameworks details (e.g., call-off agreements, procurement procedures, platform specifics), eduMEET usage and cloud security. These events target specific groups, such as NREN contacts (CSDMs, CTOs, Cloud Strategy Group members), suppliers, and R&E institutions (e.g., GÉANT-EUNIS joint workshops).

There is a regular schedule for these workshops. For example, CTO Workshops and Roadmap Update Workshops are annual events, while joint workshops with EUNIS university contacts occur once or twice a year. Some of the most significant events are the CTO and Roadmap Update Workshops. The discussions at the 2023 GÉANT CTO Workshop on Above-the-Net services not only underscored the importance of collective action and alignment, but also underlined possible directions and activities for future projects, ensuring GÉANT's continued leadership in network research and education.

5 Conclusions

The general thematic area of Above-the-Net services straddles activities within and outside the formal scope of the GN5 projects. The portfolio of services being made available to the community is managed and developed within WP4, while also seeking to maintain alignment with related activity outside the project.

WP4 has successfully executed its service development plans for GN5-1 in the form of the procurement of cloud services for the OCRE 2024 Framework. The eduMEET spinout activity has provided valuable lessons around the service sustainability of community developments in the NREN space and is continuing its evolution toward becoming a self-supported open-source software project, with some GN5 support continuing for the moment.

The user-facing portion of the service delivery chain, including portfolio management, community support, and communications, is constantly being developed to be more systematic and responsive in delivering the information and resources required to the R&E community to further the adoption of the service portfolio. The commercial-facing portion of the delivery chain conducts operational sustainment of the GÉANT Cloud Framework OCRE, maintaining ongoing communications and relations with the commercial companies that GÉANT has awarded Framework Agreements to.

The service development / procurement activities feed into the Above-the-Net service delivery chain, delivering an updated portfolio of services and related necessary information to the NRENs and their institutions to enable low-friction adoption of these services. Strong and growing service uptake in the NREN community and long-term contractual relations around the Framework make it essential to continue this service delivery activity. At the same time, the service delivery chain is flexible enough to accommodate new sources of services as and when they may arise in the course of future work inside or outside of the GN5 project scope.

References

[eduMEET]   https://edumeet.org/
[GÉANT_Clouds]   https://clouds.geant.org/
[OCRE]   https://www.ocre-project.eu/results/ocre-iaas-framework

Glossary

CSDM   Cloud Service Delivery Manager
IaaS   Infrastructure as a Service
NPAPW   Network Performing Arts Production Workshop
NREN   National Research and Education Network
OCRE   Open Clouds for Research Environments
PaaS   Platform as a Service
R&E   Research and Education
SIG   Special Interest Group
SaaS   Software as a Service
TCC   The Commons Conservancy