



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

RIPE NCC And The Cloud

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Why Move to the Cloud?

Where We Are Today



- Our services need a solid technical foundation, as we aim for stability and persistence: availability, resilience and security
- Achieving this will require distributed presence globally. In general, there are two paths to achieve this:
 1. **Scale up our existing infrastructure**
 2. **Make use of distributed third-party infrastructure**
- Through consultation with the community and our experience in migrating services to the cloud, we have seen what it can offer as well as the limits and the risks.



Our Cloud Strategy

Cloud Strategy



- Use a structured, well-defined, security-centric approach to migrate our infrastructure to the cloud as appropriate
- Apply a “cloud first” approach when developing new services
- Key goals:
 1. Improve the resilience of our services
 2. Become more agile and flexible as an organisation
 3. Focus engineering expertise on our core business



1. More Resilient Services

- Improved service resilience
- Increased global presence leading to better local access
- Desired controls over security and reporting

2. More Agility as an Organisation



- A faster, easier, safer approach to gaining experience and experimenting with new services and technologies
- Allows us to adapt to changes in the environment quickly
- Less time needed for public releases of new services
- Pay-as-you-go model:
 - Avoids over-provisioning and having to reserve idle capacity
 - Reduces investment in owning hardware
- Improved cost visibility

3. Focus On Core Business



- We can apply more of the organisation's engineering expertise to our core business
- Increases productivity by making more efficient use of engineering time
- Helps to attract and retain access to a wider pool of talent



**How Will This
Happen?**

Cloud Centre of Excellence (CCoE)



- Formed in June 2020 with contribution of 26 staff from multiple teams
- Responsible for enabling access to cloud platforms for any team that wishes to move services to the cloud
 - Providing a process and a plan for technical, legal, security, communication and financial matters
 - Includes risk analysis, considering service availability, reputation risk and legal and geo-political risks
 - Plan requires proof of concepts and engagement with community, membership and the board

Responsibilities of the CCoE



- **Governance**

- Cloud strategy and operating model
- Architecture frameworks and best practices
- Cloud cost management

- **Engineering**

- Core cloud infrastructure
- Implementation of cloud technologies

- **Knowledge**

- Technical analysis and technical support
- Supporting engineers develop cloud skills

Selecting Cloud Providers



- Vetting by Legal, Information Security, and Finance teams
- Selection based on the following criteria:
 - Number, variety, maturity and global reach of the services available
 - Possibility to create a virtual data centre within the cloud provider
 - Support for our critical hardware and platform (e.g. Elasticsearch, Hadoop)
 - Sustainability, experience, support and reputation
- Based on these, in the first round, we chose Amazon Web Services (AWS) and Google Cloud Platform (GCP)
- We are actively looking for other cloud providers
 - Meeting the above criteria
 - Ideally based in our service region
 - We closely following the progress of projects such as GAIA-X
 - We are open to your input and suggestions for possible candidates

Progress So Far



- Migrated some internal business applications to the cloud
- Started with smaller public services to gain experience
- RIPE Atlas Measurement data in Google BigQuery (since RIPE 81)
 - New service that allows *large scale* analysis of RIPE Atlas data
 - Available to the community now
- RIPE Database Release Candidate Environment
 - Migrated to AWS as a proof-of-concept (before RIPE 81)
 - Two subsequent releases since then, tested in AWS
 - Details and roadmap will be presented in the Database WG session

Services Already Migrated



RIPE NCC Software	Cloud provider	Data Residency
Meeting registration software	AWS	EU
RIPE Atlas Measurement Data (BETA)	Google	EU
RIPE NCC Access OpenID Connect support	AWS	EU
Meeting live-streaming	AWS	EU
Meeting platform	AWS	EU

Tracking this here:

<https://www.ripe.net/support/documentation/cloud-technology-status>



Next Steps

- Results from prototypes and the applications we have already migrated to the cloud are promising
- More than a dozen RIPE NCC internal services and some external services are being considered for migration in 2021, including:
 - RIPE Database
 - RPKI repositories
 - www.ripe.net website
- **Data centre exit:** reduce our **dependence** on contracted data centre space and owned hardware by three quarters of what we have now (by the end of 2023)

Key Principles



- RIPE NCC will always remain in control of our services
- We understand our role in supporting Internet infrastructure
- We cannot rely on any single provider
- Risks such as vendor lock-in or the potential for political impacts need to be fully mitigated
- Critical services will always retain an element hosted with a cloud provider in our service region or on-premise
- The RIPE NCC will always be the single point of contact with full responsibility for our services - “The buck stops with us”
- Planning communication and engagement with our community is an integral part of our migration process



Questions



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