KPMG

Nimbus CCoE Organizational Change Playbook

Cloud Center of Excellence

Government of Israel

February 2022

Nimbus Organizational Change Domains

1. Nimbus Benefits

What is our envisioned target state and which benefits do we want to realize?

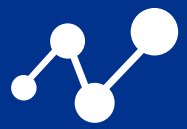
2. Key Change Domains

What are the major changes the Cloud brings to our IT departments?

2a. New Roles and Skills

2b. New Processes

2c. New Technologies and Tools



2d. New Shared Services

2e. New Third-Party Partners

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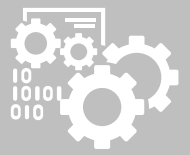

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Nimbus Cloud Benefits

Enable operational agility and scalability	**Speed and scalability in the development and deployment** of new features, applications, and systems in the Nimbus Cloud environment allows more responsiveness to department needs	*e.g. replace departments' on-premise systems with agile and easily scalable Cloud solutions*
Be able to innovate with technology	Cloud technology can help Nimbus drive agility and scalability for the latest innovation trends in terms of **faster technology prototyping and revisioning** (e.g. via A/B testing)	*e.g. automate cost-intensive manual processes fully or partly with dedicated software solutions*
Enhance maturity of data and IT security	**High-standard IT and data security protocols and state-of-the-art Cloud provider security expertise** ensure secure and compliant Cloud operations within the Nimbus Cloud tenant	*e.g. implement global security standards and holistic patching based on transparent architecture*
Focus on core business activities	**Reduced IT complexity** and **improved productivity** through **less hosting and maintenance efforts** in the Cloud free up workforce to concentrate on value creation	*e.g. reduce reliance on outdated, slow, and high-maintenance on-prem technologies*
Boost employee productivity and effectiveness	**Future-oriented talent management** and **agile and modern ways of working** around Cloud technology help Nimbus succeed and ease collaboration with ext. partners	*e.g. enable state-of-the-art skill- and mindsets for dynamic enterprise technologies*
Reduce infrastructure costs and drive efficiency	**Enhanced flexibility and reduced expenses for on-prem infrastructure** through pay-as-you go subscription models and minimal capital lockup (CAPEX) and OPEX boost cost efficiency	*e.g. cut capital locked in on-prem infrastructure and enable testing and introduction of innovations*

Guiding Principles for Using the Nimbus Cloud

Hybrid Multi-Cloud Smart

Utilize SaaS for commodity workloads and leverage cloud service providers for custom or differentiating workloads

Empower through Self-Service

Define, standardize and preapprove cloud services and environments for use by users via portal, API, or configuration repository

Optimize Costs

Continuously evaluate and optimize architecture patterns and service costs against value delivered

Reliable and Resilient by Design

Starting from cloud landing zones to solutions - design architecture patterns and templates to be performant, resilient and recoverable

Orchestrate and Automate

Strive to automate all build, configure, deploy and operational task into highly orchestrated end-to-end processes

Accountable for Value Delivered

Everyone is responsible for a healthy cloud ecosystem but each individual is accountable for delivering quality at speed and scale

Security First

Make security a core component of everything done in the cloud

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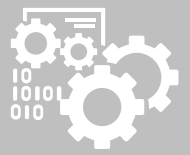

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Introduction to Key Cloud Roles

	New Role	Capability	Kev Activities
New roles needed always within each ministry	 **DevOps Engineer***	Build, Test, Operate	Manage all aspects of solution build and operations, including engineering/configuration, deployment and ongoing support of products on the Cloud.
	 **FinOps Manager**	Manage	Optimise the financial aspects of Cloud management with processes and tools. This includes the definition of cost analytics and allocation models.
	 **Cloud Cyber and Security Architect**	Plan, Develop	Provide security for cloud-based digital platforms protecting an organization's data. Analyze existing cloud structures and create new and enhanced security methods.
	 **AWS/GCP Cloud Security Engineer**	Build, Test, Operate	Work with DevOps Engineers, provide security recommendations on topics like microservices design. Respond to after-hours emergencies if needed
Depending on ministry size	 **Cloud Architect****	Plan, Develop	Define Cloud architecture roadmaps, standards and patterns in line with ICT guidance. Also, support agile delivery teams with expertise and technical advice.
	 **Cloud Network Engineer****	Operate	Manage physical and virtual networks. Define API standards and manage the API catalogue and publishing processes.
Roles only needed when own, individual Landing Zone	 **Platform Owner**	Build, Test, Operate	Manage the setup, coordination and availability of Cloud environments, ensuring that they are available as needed to support changes and BAU.
	 **Cloud Administrator**	Operate	Manage Cloud service catalogues and provide overall coordination, integration and brokerage between the organisation's various Cloud services.

*Larger scale ministries might want to consider introducing more than just one "DevOps Engineer" roles, such as dedicated "Automation" Engineers or "Cloud Data" Engineers; detailed descriptions for these kind of Sub-Roles can be found on subsequent slides

**Depending on the overall size of the ministry, a ministry might not staff a Cloud Architect or a Cloud Network Engineer role, and might rely on eGov support for these capabilities

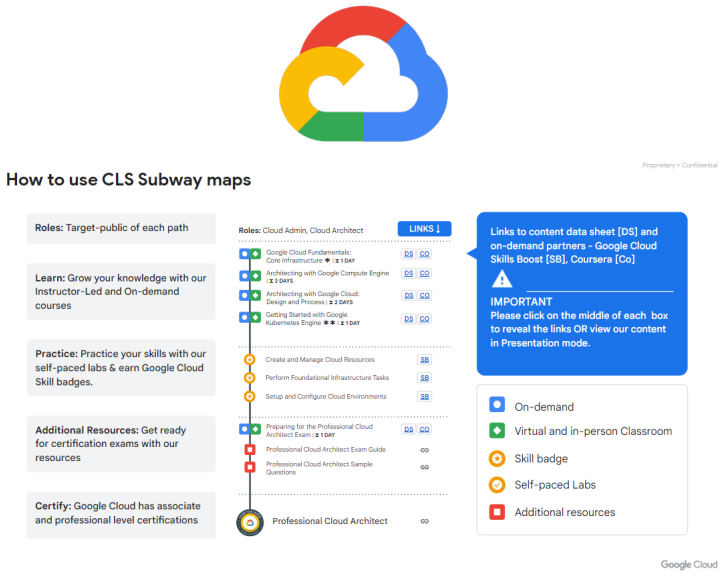
Nimbus Agile Training Path

Embracing "Cloud me in" Learning as a culture → Upskilling our employees

Nimbus cloud Training Policy

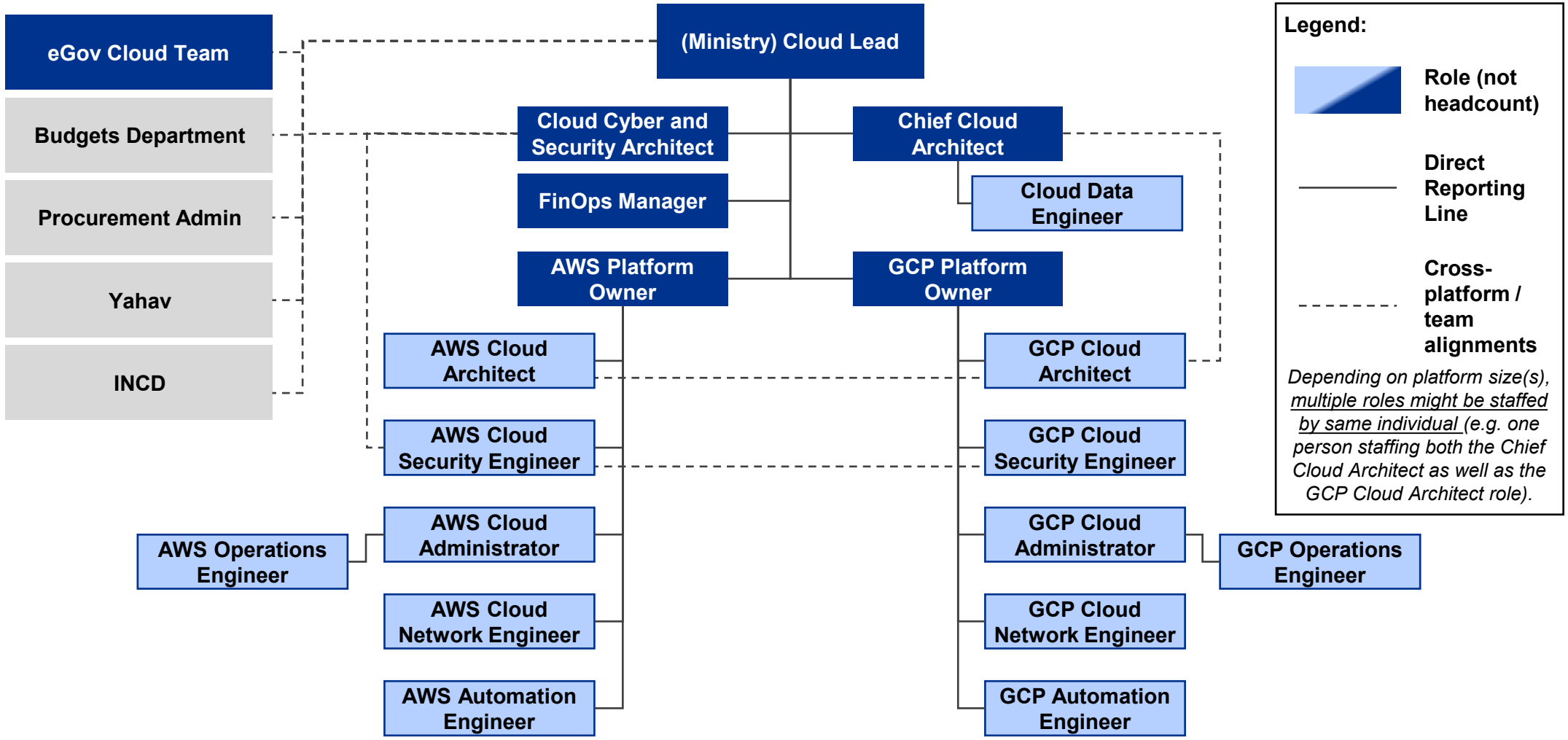
- ✓ Role based learning path
- ✓ Solution based learning path
- ✓ Product based learning path

Submit for AWS training



Submit for GCP training

With an owned Landing Zone: The full Cloud Team Setup



Example Cloud Team Role: AWS/GCP Cloud Architect

Executive Summary

Accountable for planning, designing and implementing Product Architectures. This foundational architecture is designed to support the needs of the defined workloads and services that are in scope of the Product Architecture Team.

Key Responsibilities

- Collaborate with Cloud Lead Solutions Architect to understand business needs and to align designs, definitions, config. & timelines with strategic & tactical customer objectives
- Align on product requirements with Cloud Lead Solutions Architect
- Stay updated on the latest information about cloud Product Architecture practices, techniques & capabilities & guide technical sessions about architecture, design, configuration, Infrastructure as Code & about following defined processes
- Track & report operational feedback regarding Cloud Solution architecture standards back to Lead Cloud Solutions Architect
- Participate in design and implementation of cloud products by ensuring adherence to predefined Cloud Solution architecture standards & guardrails
- Provide technical oversight on Product Architecture within respective agile team

Example one-pager for Cloud Architect – others in appendix

Skills

- Experience with modern cloud technologies
- Programming and scripting experience (e.g. Python, Bash)
- Knowledge of container and orchestration technologies (e.g. Docker and Kubernetes)
- Deep Cloud knowledge and applied experience
- Good hands-on experience on cloud service provider (GCP, AWS)

Representative Certifications

- AWS Certified Solutions Architect – Professional
- Professional Cloud Architect (GCP)
- CCNA/CCNP
- AZ-900, SC-900, AZ-104, AZ-303+AZ-304, AZ-305,
- TOGAF, ITIL, PMP or PRINCE2
- AI-900, DP-900 , DP-300

Potential Traditional IT Roles

- Solutions Architect
- Software Developer/ Architect

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient	✓			✓
Intermediate		✓	✓	
Foundational				
Beginner				

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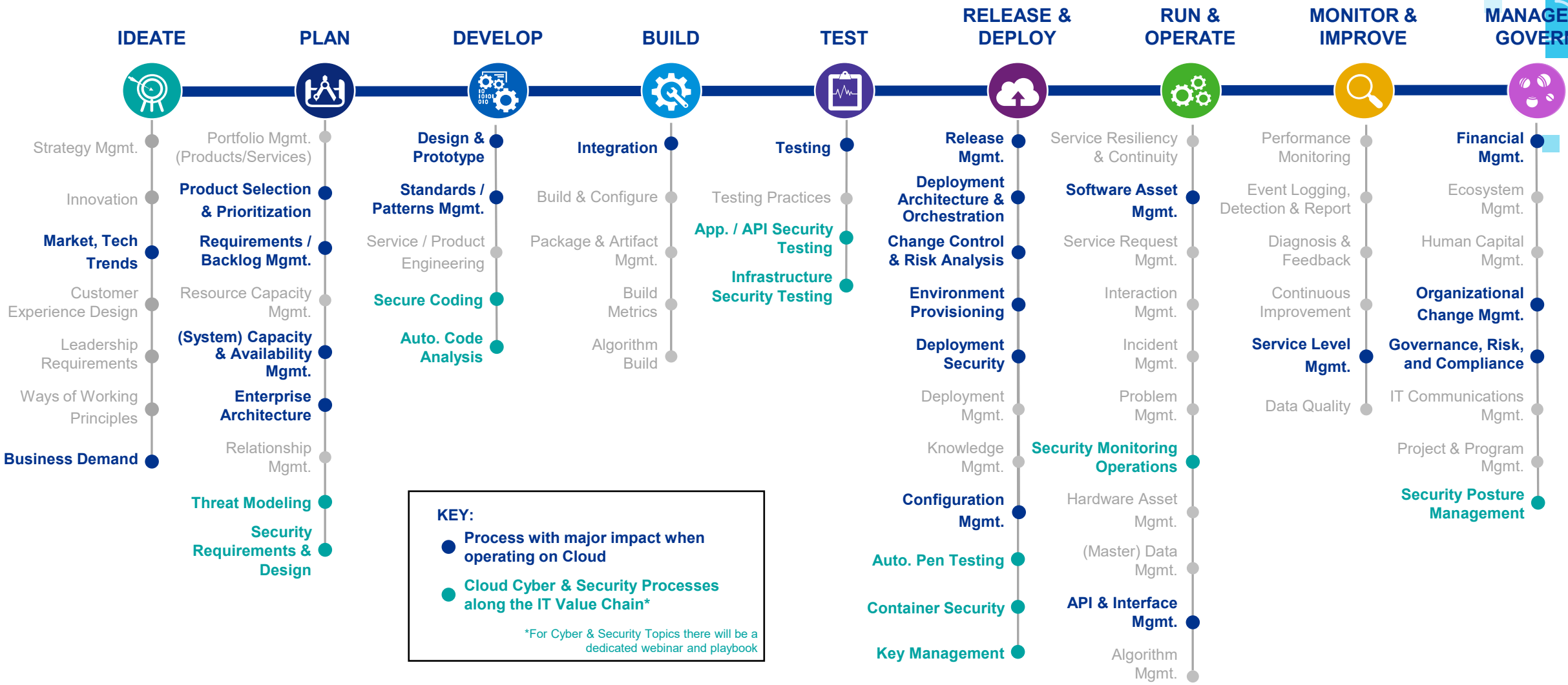
The IT Value Chain & what changes with the Cloud



Cloud Impacts on Ideate Processes

Capability	Net Change
Market & Technology Trends	As organisations transition more to the Cloud, they become consumers of external market services. In this model, the **ability to follow market trends and understand (or influence) vendor roadmaps is critical**. In addition, awareness of use cases for how other organisations are leveraging Cloud to enable Digital transformation is also highly valuable.
Business Demand	The adoption of Cloud services is linked with a move to a consumption-based charging model where services are costed per user, transaction or utilised capacity. Using these services in a more cost efficient manner, than with on premise, requires an organisation to establish a robust function for understanding, **aggregating, forecasting and influencing demand on cloud services**. Working closely with Capacity and Financial Management, Business Demand will be looking to influence patterns of business activity to optimise the **usage of reserved vs on demand capacity** (e.g. by moving all batch processes to night-time when these are less likely to cause utilisation spikes beyond reserved capacity), **or enforcing automated deactivation** of non-critical resources overnight.

Cloud Impacts on Plan Processes

Capability	Net Change
Product Selection & Prioritization	Cloud enables organisations to implement new products and features. As such, the **ability to analyse and select the right Cloud product mix is important**. Organisations should therefore consider how to maintain agility and avoid vendor lock.
Requirements / Backlog Management	To fully unlock the benefits of cloud it is important to have a **clear and well managed backlog of business requirements** and align those requirements with vendor roadmaps and/or the resource capacity of agile development teams.
(System) Capacity & Availability Management	Capacity Management will need to evolve from a traditionally static process concerned with increasing IT capacity to an **agile function looking to optimise the mix of reserved and on demand capacity**. And should look to use cloud services purchasing options to ensure cost efficient use of cloud capacity and resilient peak operations by enforcing automated non-prod environment deactivation outside office hours, orphaned resources management etc.
Enterprise Architecture	EA will need to be enhanced with new cloud-specific skills to ensure that the right cloud choices, principles and overall design are set for product development teams and projects to adhere to. In the new target state, architecture will need to be designed in line with a **'cloud first' principle**

Cloud Impacts on Develop Processes

Capability	Net Change
Design & Prototype	With the introduction of Agile product development methods and adoption of a Minimum Viable Product concept, **design and product engineering processes are iterative and intertwined with testing and release cycles**, and the lead time from concept to product decreases. **Design resources will need to be upskilled to enable them to design products that fully make use of agility** provided by Cloud and are compliant with new architectural guidelines, patterns and principles.
Standards / Patterns Mgmt	Cloud based organisations benefit from the ability spin up production and non-production environments **using pre-defined configurations and infrastructure blueprints**. This enhanced capability will provide active ownership of such blueprints, ensuring they are created, changed and decommissioned in a controlled and compliant manner.

Cloud Impact on Build Processes

Capability	Net Change
Integration	As organisation's move to Cloud, the relative importance of technical engineering capabilities reduces. This is offset by the rising importance of technical integration capabilities. The goal is to integrate a **complex suite of third party Cloud products and services** into a coherent overall architecture - capable of producing seamless end-to-end customer experiences. Furthermore, in order to deliver fast and effective **DevOps capabilities**, **vertical integration** down through the technology stack between development, test and production layers also becomes increasingly important.

Cloud Impact on Test Processes

Capability	Net Change
Test	Adoption of cloud and Agile brings significant changes to testing as the **agile release cadence requires build, test and release cycles to become much more frequent** than in a traditional waterfall model. This new testing frequency is enabled by the cloud technology itself as it allows product teams to **spin new test environments up within seconds**. This effectively removes one of the major bottlenecks known from on premise hosted IT where a new environment would often take several days or more to be created and configured. **Agile lifecycle testing** enabled by cloud and DevOps tooling leverages specific practices such as test-driven development, continuous code integration, automated functional and non-functional testing and many more.

Cloud Impact on Release & Deploy Processes

Capability	Net Change
Release Management	Release management is heavily impacted by **agile processes** required to fully leverage the opportunities provided by the new technology.
Deployment Architecture & Orchestration	The key challenge for this capability is striking the right balance between **enabling a sufficient level of agility** through process streamlining and automation and **providing a sufficient level of change assurance**.
Change Control & Risk Analysis	**Standardisation of repetitive, low risk changes** – e.g. to create new environments or resources in cloud and automation of environments
Environment Provisioning	The definition of change cost threshold from which additional approvals may be required as part of change control is changing with Cloud. Also the monitoring of pre-prod and production environments' alignment to ensure **organisation's ability to execute Disaster Recovery services** is strongly improving.

Cloud Impacts on Run & Operate Processes

Capability	Net Change
Security Monitoring & Operations	Moving services and data from on premise to Cloud presents **new threats and vulnerabilities**. Security capabilities need to be adapted and strengthened with **additional monitoring, expertise and rapid reaction processes** to respond to issues as they arise. [For further details, please refer to the Cloud Cyber Security Playbook and Webinar]
Configuration Management	In the **absence of deep technical ownership of the actual physical infrastructure**, configuration of the Cloud environment is key to controlling and managing the estate. Configuration standards, controls and assurance are needed to ensure architecture coherence and to optimise costs.
Software Asset Management	With **SaaS/PaaS providers often charging services per active user**, Software Asset Management should focus on ensuring efficient usage of accounts and licenses. To keep the costs optimised, IT Asset Management should **identify inactive resources and oversee decommissioning**.

Cloud Impacts on Monitor and Improve Processes

Capability	Net Change
Service Level Management	As organisations become consumers of Cloud services, their ability to define, **measure and manage the precise services being delivered by external providers becomes increasingly vital**. In this context, the IT function becomes a 'service broker' for their business and therefore must have the ability to manage an increasing number of ever more complex service levels. In addition, service level management for Cloud must consider a wider range of measures than before (e.g. data management requirements).

Cloud Impacts on Manage & Govern Processes

Capability	Net Change
Organizational Change Management	Adopting cloud and agile ways of working increases the volume of change within the organisation. The relative ease of switching from one PaaS solution to another and frequent delivery of new features and functionalities will require **employees and stakeholders to continually learn and adapt**. Organisational Change Management will be critical in ensuring the high levels of adoption and thereby the ongoing success of these changes.
Financial Management	The shift from CAPEX to OPEX management often requires changing the funding and accounting methods but above all, requires a significant culture change for the Finance functions, IT delivery teams and budget owners. As the **lines between Financial and Capacity Management become blurred**, this requires establishing a very closely linked suite of Business Demand / Financial Mgmt / Capacity Mgmt capabilities jointly looking to understand and optimise the cloud spend.
Governance, Risk, and Compliance	The moving of an organisation's data and services into the Cloud, will bear **significant risks and compliance considerations that will need to be managed** beyond the immediate transition horizon. This capability will become even more critical than before in managing those considerations.

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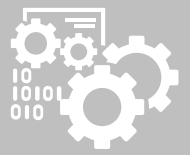

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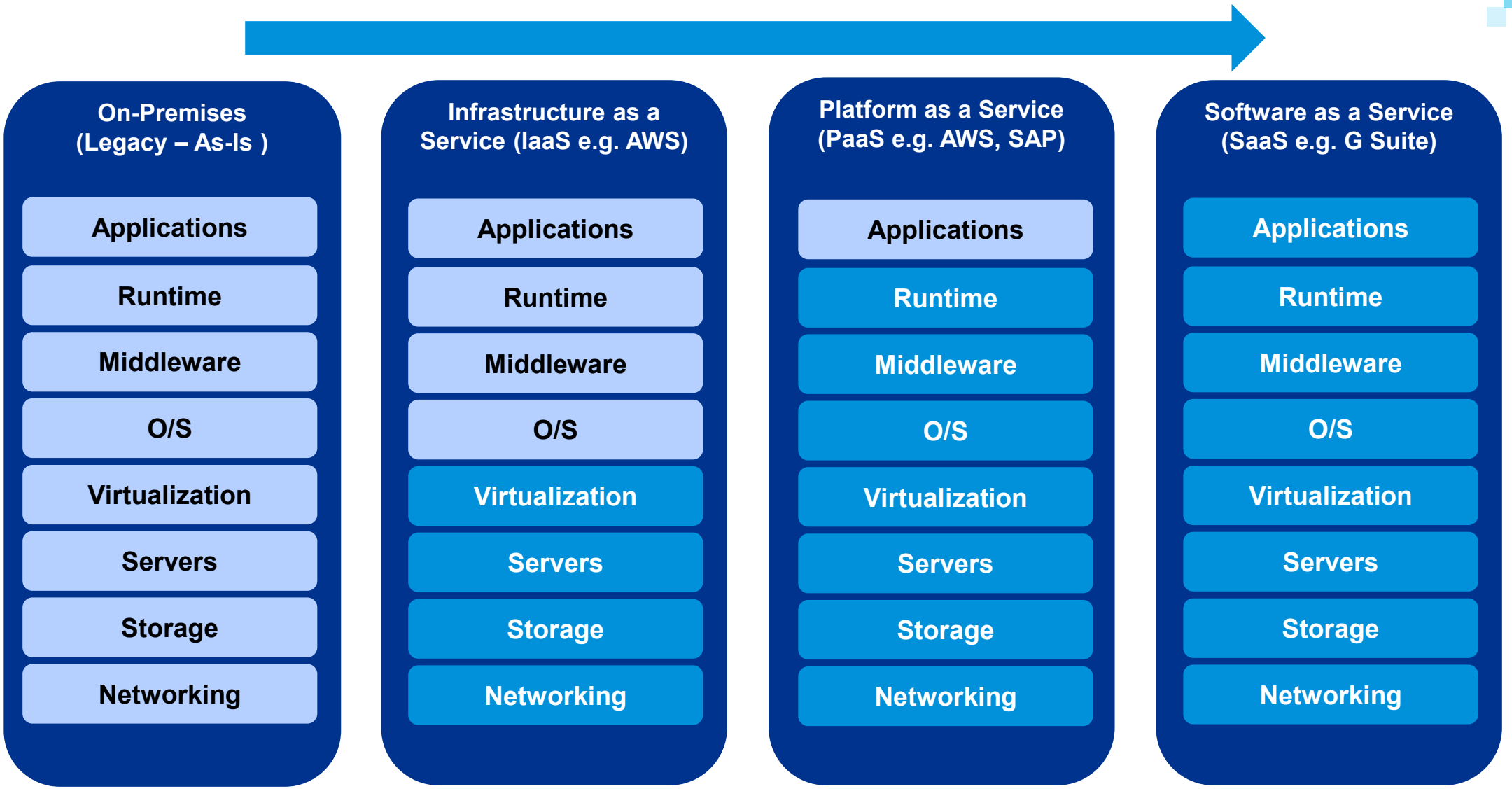
New Approach to Technology Sourcing



Legend: Managed by Government IT (internal) | Managed by CSP (e.g. Google)

New Technological Possibilities with the Cloud

Higher Degree of Automation at IT

- **“Infrastructure as Code”** with single source of infrastructure descriptions
- **Repeatable deployment** allows for testing and resetting quickly
- Configuration changes checked in like code allows traceability on changes to infrastructure

Increased Level of Modularity & Flexibility

- **“Containers”** greatly reduce resources needed to stand-up environments
- **“Microservices”** break down functions of an application into small independent sections of code
- Making it easier to handle highly complex dependencies

Example Cloud-native Dev. & Ops. Tools (non-CSP)

Tools should only be used, if they are allowed for by a government tender

Application Definition & Development

- Database
- Streaming & Messaging
- Application Def. & Image Build
- Continuous Integration & Delivery

Orchestration and Management

- Scheduling & Orchestration
- Coordination & Service Discovery
- Remote Procedure Call
- Service Proxy
- API Gateway
- Service Mesh

Runtime

- Cloud Native Storage
- Container Runtime
- Cloud Native Network

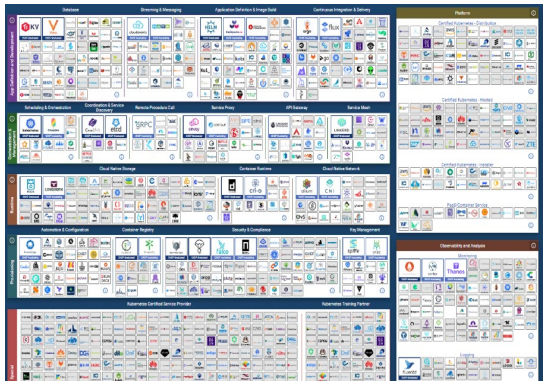
Provisioning

- Automation & Configuration
- Container Registry
- Security & Compliance
- Key Management

Observability and Analysis

- Monitoring
- Logging
- Tracing
- Chaos Engineering

To see a full & dynamic overview over Service Providers and Tools across all these areas, click the capabilities on the left or visit the full view here.



Example Tools used around Cloud Operations

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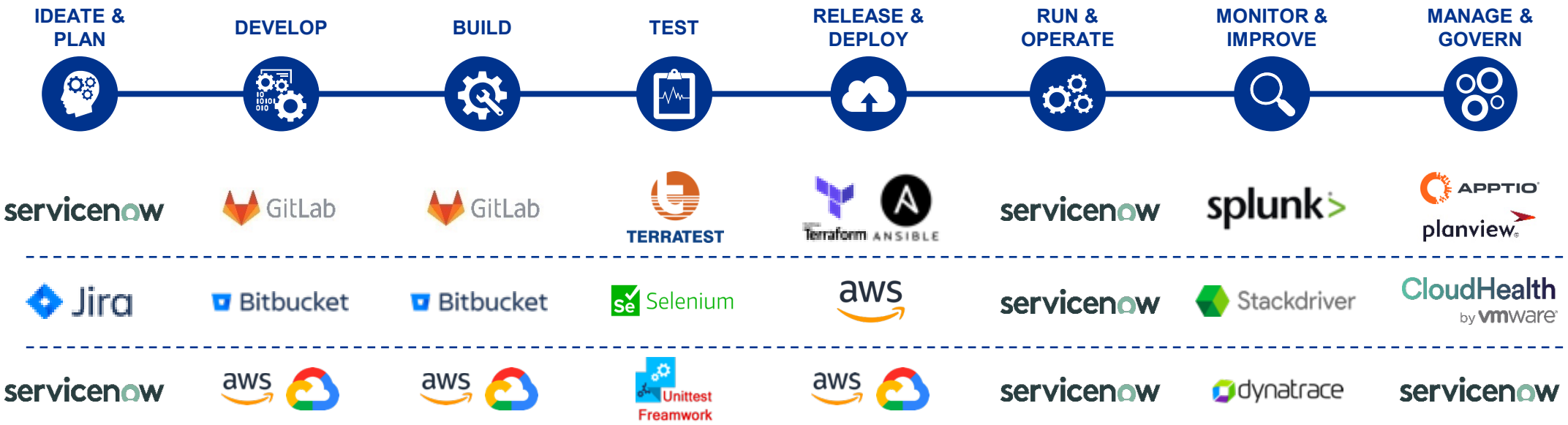
IT Value Chain



Platforms	Google Cloud	aws						
Collaboration	Google Cloud	zoom	?					
Orchestration	Google Cloud	aws	CloudHealth by vmware	?				
Security	Radar	splunk>	Active Directory	aqua	?			

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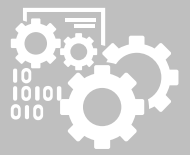

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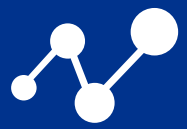

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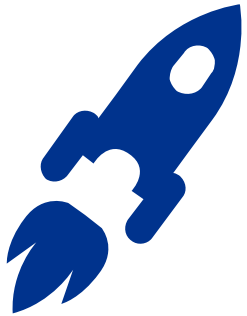
Mission Statement of the eGov Cloud Operations

אנו בממשל זמין ברשות התקשוב הממשלתי מובילים את חיבור משרדי הממשלה לענן נימבוס ,מנהלים שירותים משותפים ומאובטחים במטרה לחבר את המשרדים לענן ולאפשר להם להקים תשתיות ושירותים בענן תוך מתן דגש על יכולות ניהול עצמי.

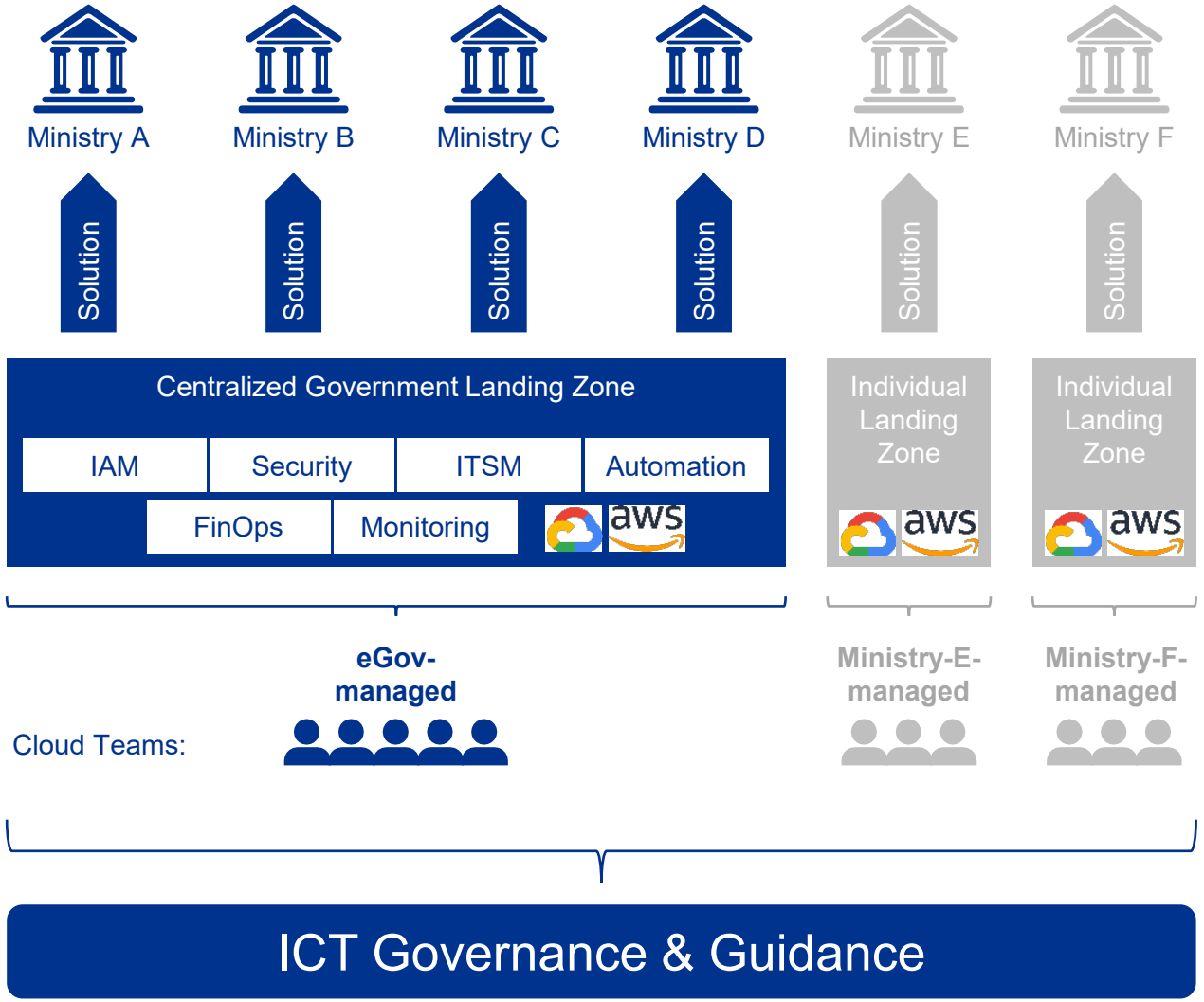


מפתחים שירותים ותשתיות רוחביות בענן עבור משרדי הממשלה על מנת לקיים את חזון ממשלה אחת והאזרח במרכז.

We in e-Gov as part of ICT Authority ***lead the government ministries transformation to the Nimbus cloud****, and operate shared, secured services in order to connect the various ministries to the cloud and* ***allow them to set up on-cloud infrastructure and application services****, paying special attention to* ***self-manageability****.*

We build common infrastructure and foundation services in the cloud *for government ministries in order to achieve* ***the vision of one government - centered around the citizen****.*

A common Landing Zone



- ✓ Common shared Landing Zone with separated ministry accounts
- ✓ New shared services provided by eGov as part of the new Landing Zone
- ✓ Cost-efficiency and security ensured by design
- ✓ Not every ministry needs to build up all Cloud skills themselves
- ✓ Option to opt out if ministry requires

Further information on new Shared Services as part of the Landing Zone will be communicated by eGov

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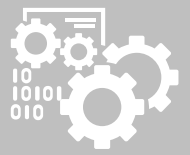

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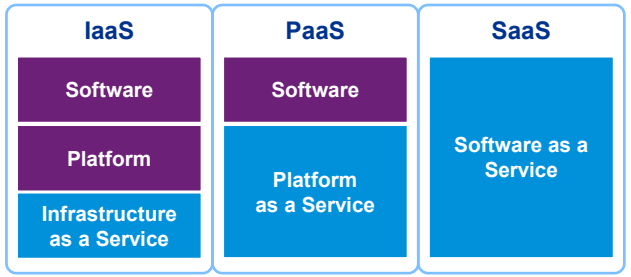
Different types of new external partners: CSPs, MSPs & SIs

Who provides Cloud services?



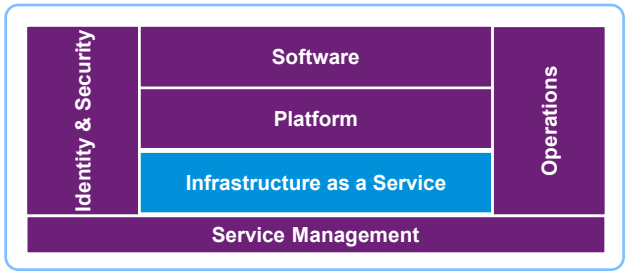
A **Cloud Services Provider (CSP)** maintains a portfolio of infrastructure, platform or applications services in the Cloud, as well as the supported tooling.

Sourcing considerations for a CSP include the Cloud model as well as the breadth and maturity of the offering.

Nimbus Tender Layer 1 for core CSPs Amazon & Google

Nimbus Tender Layer 5 for additional PaaS & SaaS providers

Who manages Cloud services?

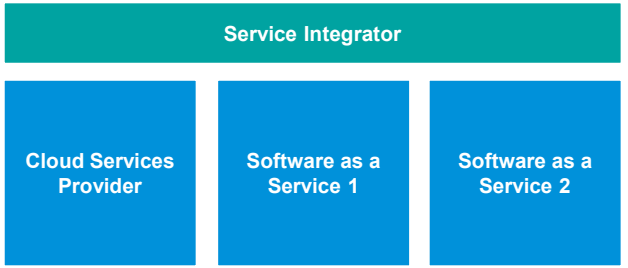


A **Managed Services Provider (MSP)** provides end-to-end service delivery for a recurring fee tied to service level objectives. MSP responsibilities are aligned with those of the internal IT Operations team for on-prem services.

A key sourcing consideration is whether one or several MSPs should manage the various Cloud services and environments.

Nimbus Tender Layer 3 for supporting MSPs

Who integrates Cloud services?



The **Service Integration (SI)** function is responsible for orchestrating and integrating all the elements that comprise end-to-end service delivery, including Cloud Services Providers and the on-premises infrastructure provider.

Sourcing considerations for SI focus primarily on deciding between internal ownership, a third-party specialist, or leveraging an MSP

Nimbus Tender Layer 3 & 5 for supporting MSPs & SIs

So what? What now?

2a. New Roles and Skills

- Analyze what skills you currently have compared to the roles in this playbook
- Identify the skill gap & start training if necessary

2b. New Processes

- Analyze what current processes along the IT Value Chain need changing in your IT
- Define measures for process change

2c. New Technologies and Tools

- Analyze what tools you might already be using along the IT Value Chain
- Get informed on the available tools for Cloud dev. & ops.

2d. New Shared Services

- Benefit from the joint Landing Zone and other associated Shared Services offered by eGov

2e. New Third-Party Partners

- Understand for which skill & technology gaps you should approach an MSP or SI provider

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KPMG

New
Roles
and Skills

Appendix: Cloud Roles, Skills & Responsibilities

Government of Israel

Nimbus CCoE Organizational Change Playbook

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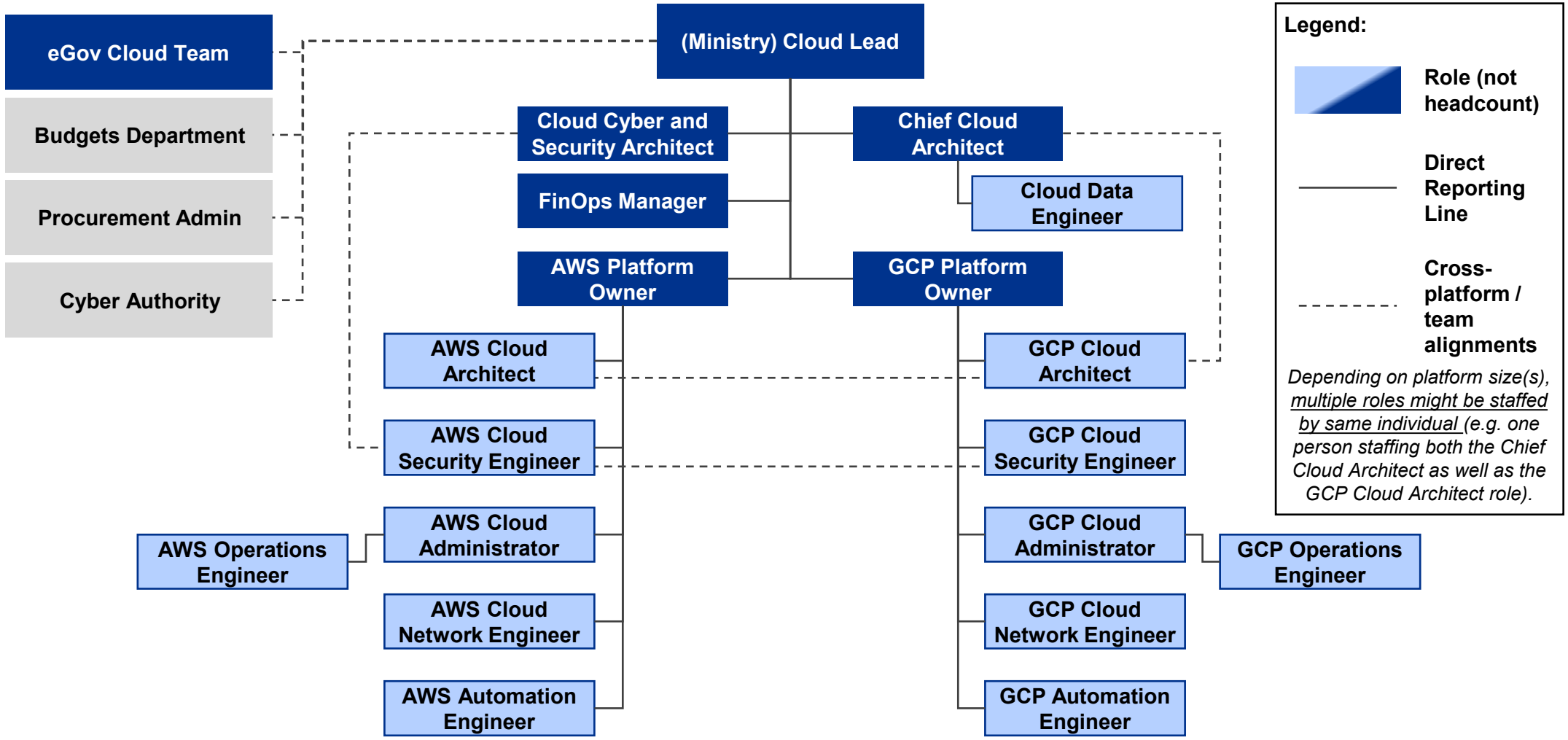
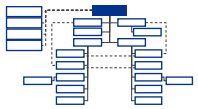
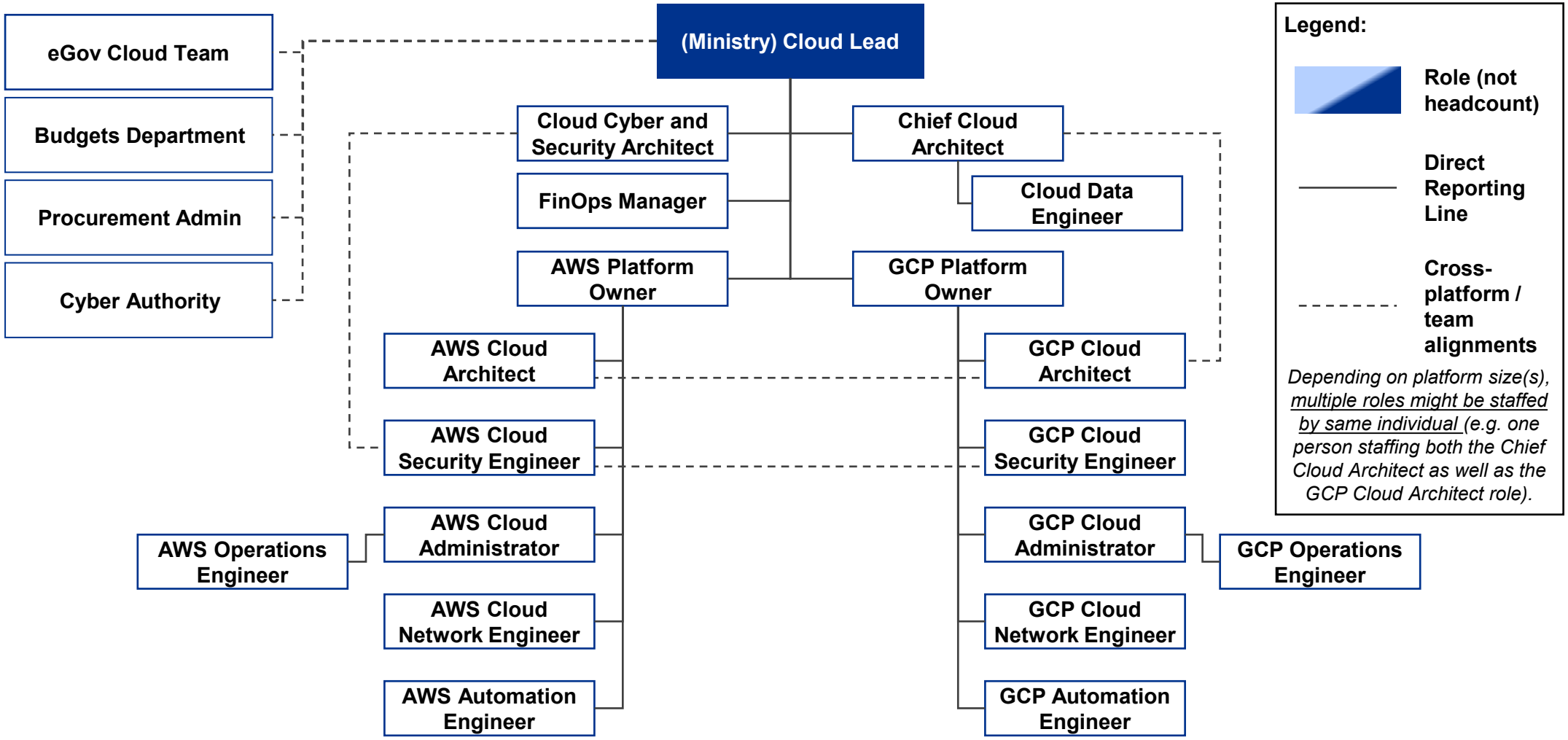
The Cloud Roles interacting

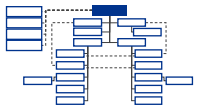


Cloud Lead Role





Cloud Team Capability Profile: Cloud Lead



Executive Summary

The Cloud Lead is an executive role focused on executing against the Nimbus Cloud Vision. This role is responsible for implementing the Nimbus Cloud approach, governance, policies, architectural patterns and standards. The position will collaborate with other functions to build and configure resilient, stable, reliable and appropriately safeguarded cloud platforms and services.

Key Responsibilities

- Responsible for overseeing the construction of architecture blueprints for new and modified cloud shared services, in collaboration with broader cloud team
- Responsible for managing the development of cloud landing zones
- Implements cloud governance policies, as part of a broader IT governance process, to ensure cloud services are cost-effective, provide value in a safe and reliable manner, and comply with regulatory and legal requirements
- Advise Ministries on available and emerging cloud services
- Responsible for working with Finance on pricing models and chargeback for cloud services (strategic FinOps level)
- Work with providers, vendors, and business stakeholders to incorporate emerging cloud services into the Nimbus Cloud
- Develop plans to enhance existing cloud services and platforms

Skills

- Strong experience on enterprise or solutions architecture and business relationship management
- Strong hands-on experience on any one Public Cloud environment (AWS/GCP) and Private Cloud environment
- Experience in service delivery and large sale transformation projects
- Well versed in technology, recommendation development and implementation
- Ability to articulate technology services in terms of business needs and opportunities
- Ability to negotiate and resolve conflicting priorities and to influence senior leadership

Representative Certifications

- TOGAF
- PMP
- Any professional level certification on AWS/GCP

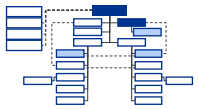
Potential Traditional IT Roles

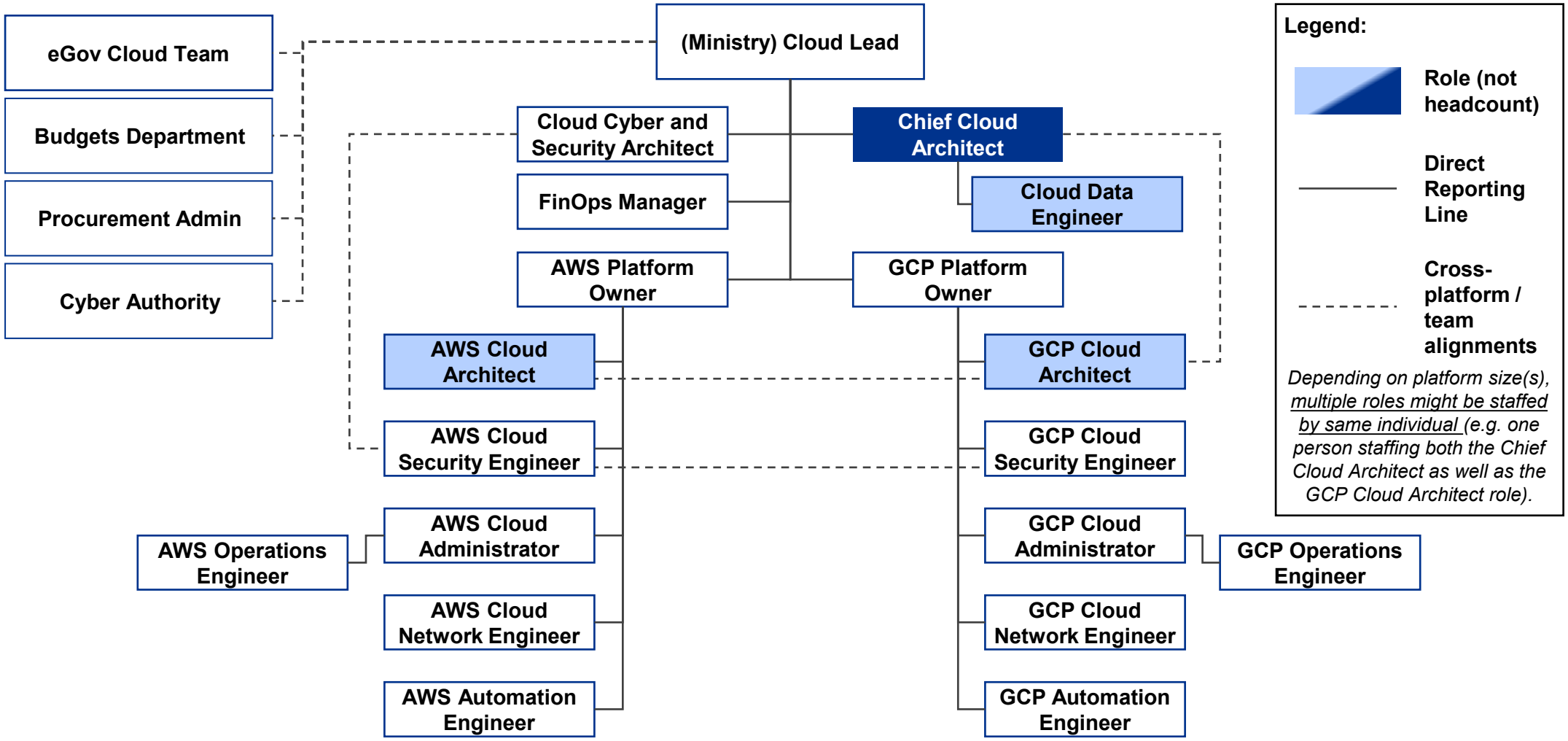
- Director – Technology Strategy
- Director – IT/DC Operations
- Director – Infrastructure Engineering

Core Attributes

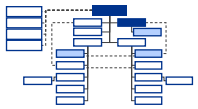
Level	Technical	Business	People	Process
Expert		✓	✓	✓
Proficient	✓			
Intermediate				
Foundational				
Beginner				

Architecture Roles





Cloud Team Capability Profile: Chief Cloud Architect



Executive Summary

Manages cloud architecture and position in cloud environments. Plays a strategic role in maintaining all cloud systems including the front-end platforms, servers, storage, and management networks. They are also responsible for bridging the gaps between complex business problems and solutions in the cloud. Cloud Architects have a robust understanding of cloud computing and technology systems, as well as experience designing and transferring applications to the cloud.

Key Responsibilities

- Create a well-informed cloud recommendation and manage the adoption process
- Regularly evaluate cloud applications, hardware, and software
- Develop and organize cloud systems
- Work closely with IT security to monitor the government's cloud privacy
- Offer guidance in infrastructure migration techniques including bulk application transfers into the cloud
- Identify the top cloud architecture solutions to successfully meet the strategic needs of the government
- Participate in architectural discussions and design exercises to create large scale solutions built on cloud
- Develop innovative solutions to complex business and technology problems
- Develop new cloud approaches and concepts
- Respond to technical issues in a professional and timely manner

Skills

- Cloud integration platforms and tools
- Cloud development frameworks
- Strong hands-on experience on any one Public Cloud environment (AWS GCP) and Private Cloud environment
- Good knowledge on various OS (Linux, Unix, Solaris, Ubuntu, Windows etc.)
- Good understanding of enterprise networks, security and identity access management (IAM)
- In depth knowledge of implementing various cloud migration patterns such as rehost, replatform, and refactor

Representative Certifications

- AWS Certified Solutions Architect – Professional
- Professional Cloud Architect (GCP)
- CCNA/CCNP

Potential Traditional IT Roles

- Data Center architects
- Infrastructure architect
- Integration architects (network, identity, services and data)

Core Attributes

Level	Technical	Business	People	Process
Expert		✓	✓	✓
Proficient	✓			
Intermediate				
Foundational				
Beginner				

Cloud Team Capability Profile: Cloud Data Engineer

Executive Summary

A Cloud Data Engineer is responsible for designing, building, operationalizing, securing, and monitoring data processing systems from multiple lenses, including security, compliance, scalability, reliability, and portability perspectives. A Data Engineer should also be able to leverage, deploy, and continuously train pre-existing machine learning models.

Key Responsibilities

- Provide cloud-enabling technical solutions to support engineering teams for security and compliance requirements for cloud data services
- Design data pipelines, database structures, and robust data models
- Ensure compliance with relevant data residency and data governance requirements
- Develop and deploy machine learning models
- Configure data storage, databases, data lakes, and other cloud data services
- Act as a subject matter expert in cloud data services such as AWS RDS and Redshift or GCP Dataflow and BigQuery
- Contribute to the data aspects of shared services and Ministry solution architecture
- Publish best practices in cloud data management for Ministries to follow in solution development
- Manage relevant database licenses in the cloud

Skills

- Understanding of core data structuring and engineering concepts
- Experience building and managing databases for large organizations
- Familiar with GCP Dataflow, Dataproc, Pub/Sub, BigQuery, AutoML, TensorFlow, Cloud Storage, Cloud SQL, and other relevant services
- Expertise in AWS Aurora, Redshoft, RDS, SageMaker, S3, and S3 Data Lakes
- Relevant experience in PostgreSQL, MySQL, MongoDB, DynamoDB and other database services

Representative Certifications

- AWS Solutions Architect Associate
- AWS Data Analytics Specialty
- AWS Machine Learning Specialty
- GCP Professional Data Engineer
- GCP Professional Cloud Architect

Potential Traditional IT Roles

- Data architect
- Data engineer
- Data scientist

Core Attributes

Level	Technical	Business	People	Process
Expert	✓			
Proficient		✓	✓	✓
Intermediate				
Foundational				
Beginner				

Cloud Team Capability Profile: AWS/GCP Cloud Architect

Executive Summary

Accountable for planning, designing and implementing Product Architectures. This foundational architecture is designed to support the needs of the defined workloads and services that are in scope of the Product Architecture Team.

Key Responsibilities

- Collaborate with Cloud Lead Solutions Architect to understand business needs and to align designs, definitions, config. & timelines with strategic & tactical customer objectives
- Align on product requirements with Cloud Lead Solutions Architect
- Stay updated on the latest information about cloud Product Architecture practices, techniques & capabilities & guide technical sessions about architecture, design, configuration, Infrastructure as Code & about following defined processes
- Track & report operational feedback regarding Cloud Solution architecture standards back to Lead Cloud Solutions Architect
- Participate in design and implementation of cloud products by ensuring adherence to predefined Cloud Solution architecture standards & guardrails
- Provide technical oversight on Product Architecture within respective agile team

Skills

- Experience with modern cloud technologies
- Programming and scripting experience (e.g. Python, Bash)
- Knowledge of container and orchestration technologies (e.g. Docker and Kubernetes)
- Deep Cloud knowledge and applied experience
- Good hands-on experience on cloud service provider (GCP, AWS)

Representative Certifications

- AWS Certified Solutions Architect – Professional
- Professional Cloud Architect (GCP)
- CCNA/CCNP
- AZ-900, SC-900, AZ-104, AZ-303+AZ-304, AZ-305,
- TOGAF, ITIL, PMP or PRINCE2
- AI-900, DP-900 , DP-300

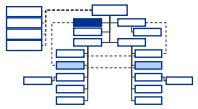
Potential Traditional IT Roles

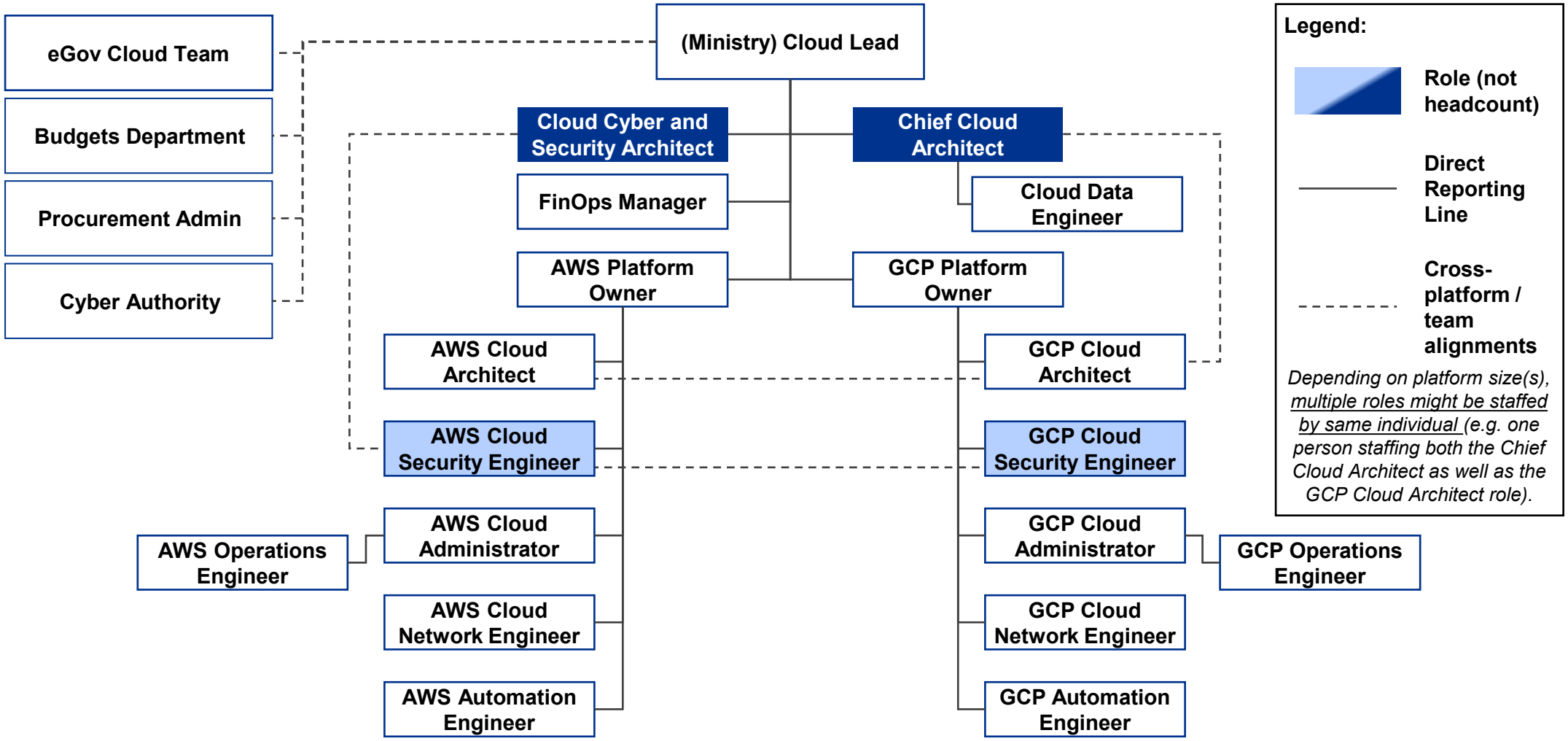
- Solutions Architect
- Software Developer/ Architect

Core Attributes

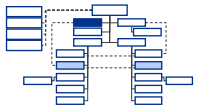
Level	Technical	Business	People	Process
Expert				
Proficient	✓			✓
Intermediate		✓	✓	
Foundational				
Beginner				

Security Roles





Cloud Team Capability Profile: Cloud Cyber and Security Architect



Executive Summary

Responsible for providing security for cloud-based digital platforms and plays an integral role in protecting an organization's data. This may involve analyzing existing cloud structures and creating new and enhanced security methods. They often serve as part of a larger team dedicated to cloud-based management and security.

Key Responsibilities

- Provide cloud-enabling technical solutions to support engineering teams for security and compliance requirements for their cloud services
- Design security automation scripts for protecting cloud services
- Design and develop security architectures for cloud and hybrid-based systems
- Design and implement cloud-native architectures and designs that will allow those requirements to be met with a minimal degree of risk and with appropriate security controls present
- Performing threat simulations to detect possible risks and providing security recommendations on topics like microservice design or application development
- Track security issues and implement solutions in a prompt manner
- Manage security projects to ensure cloud service offerings implement necessary security controls through the development and release cycles

Skills

- Expertise on cloud identity and access management. vulnerability assessment/remediation
- Good knowledge of Cloud Architectures, and Cloud Network technologies
- Working knowledge of common and industry standard cloud-native/cloud-friendly authentication mechanisms.
- Strong expertise on cloud data, platform and infrastructure security
- Cloud security expertise and integration experience with various cloud platforms
- Detailed understanding of SSL/TLS protocols and certificate- based solutions
- Firm understanding of Regulatory Requirements/ Compliance/Internal Controls (i.e. ISO, SOC2)

Representative Certifications

- CCNA Cloud , CCNP Security , CCIE Security
- Certified Information Systems Security Professional – CISSP
- AWS Certified Security – Specialty Certification
- Professional Cloud Security Engineer (GCP)
- Certified Cloud Security Professional – CCSP

Potential Traditional IT Roles

- IT security specialist/engineer
- Security architect
- Security systems administrator

Core Attributes

Level	Technical	Business	People	Process
Expert	✓			
Proficient		✓	✓	✓
Intermediate				
Foundational				
Beginner				

Cloud Team Capability Profile: AWS/GCP Cloud Security Engineer

Executive Summary

A cloud security engineer specializes in providing security for cloud-based digital platforms and plays an integral role in protecting an organization's data. This may involve analyzing existing cloud structures and creating new and enhanced security methods. They often serve as part of a larger team dedicated to cloud-based management and security. Cloud security engineers usually work full-time onsite or remote, with some positions requiring personnel to respond to after-hours emergencies.

Key Responsibilities

- Investigate, create, and recommend innovative technologies or other methods that will enhance the security of cloud-based environments.
- Design, implement, configure, fine tune cloud security controls and systems (native, 3rd party or custom).
- Create cloud-based programs, performing threat simulations to detect possible risks.
- Work with developers and DevOps, providing security recommendations on topics like microservices design or application development, network architecture, infrastructure provisioning and more.
- Cloud security engineers may instruct other dev or DevOps teams on proper coding methods.

Skills

- Strong technical skills including experience with Linux and Windows operating systems, scripting languages like Python, and cloud provider ecosystems like Amazon AWS.
- Excellent attention to detail to enable constantly monitoring systems to ensure there are no external threats.
- Excellent oral and written communication skills
- Project management skills
- Ingenuity and strong problem-solving skills in order to swiftly and creatively deal with threats or flaws in networks

Representative Certifications

- Certification through the (ISC) ², Cloud institute, and Cloud Security Alliance: CCSP, CCA, CCP, CCSK, GCSA
- AWS: CSS, CLF-C01 (practitioner), SAA-C02 (arch.), SOA-C02 (SysOps)
- GCP: PCSE (Security Engineer), DevOps engineer
- Kubernetes: CKS
- AWS Certified Solutions Architect – Professional
- Professional Cloud Architect (GCP)

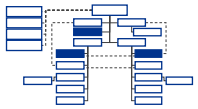
Potential Traditional IT Roles

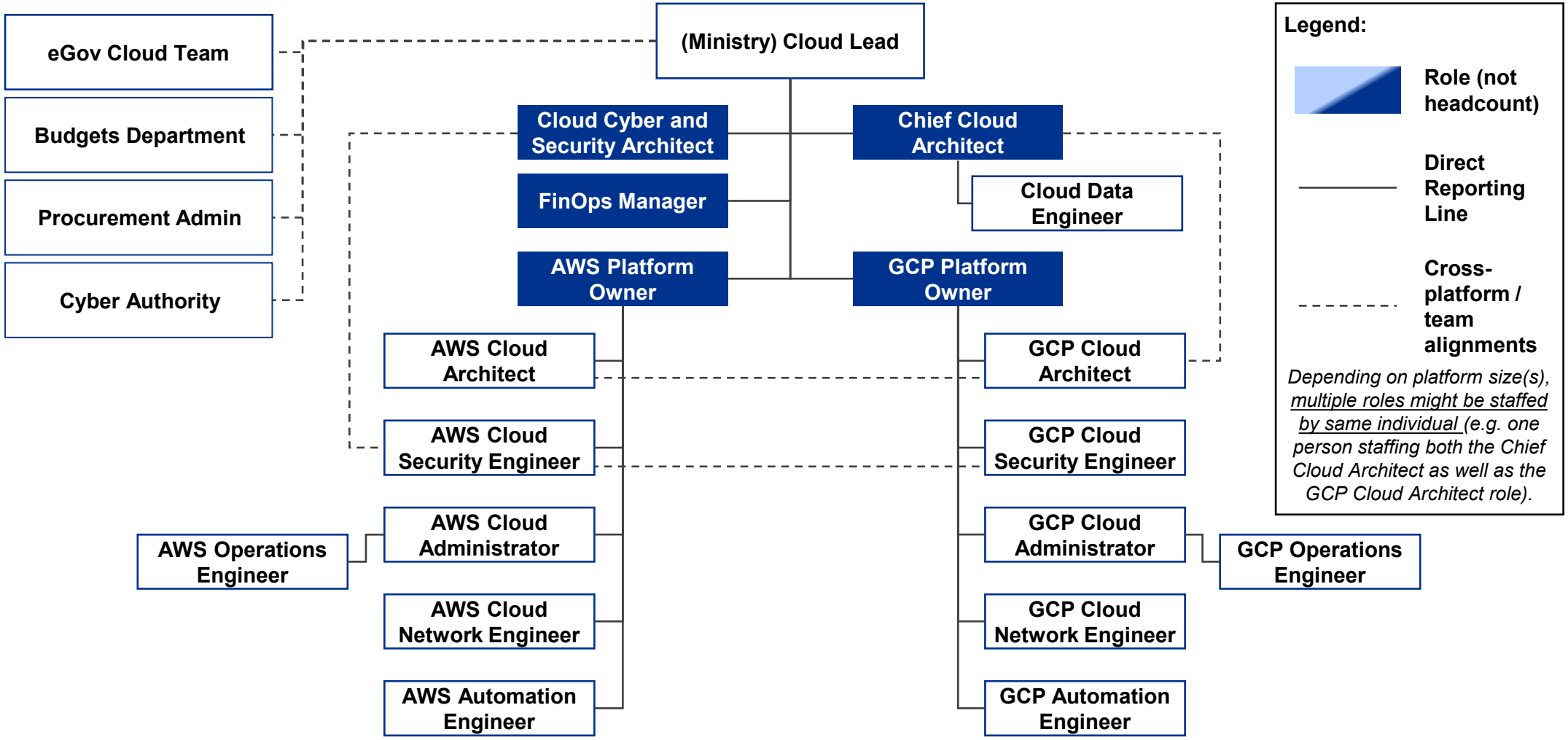
- Network security admin
- System security
- Network or system admin
- DevOps engineer

Core Attributes

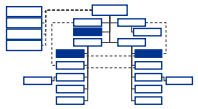
Level	Technical	Business	People	Process
Expert				
Proficient	✓			
Intermediate				✓
Foundational		✓	✓	
Beginner				

FinOps & Platform Roles





Cloud Team Capability Profile: FinOps Manager



Executive Summary

The Cloud FinOps Manager combines intimate knowledge of software development requirements with an expertise in finding optimal and cost-efficient solutions for deployment in the cloud. The goal for Cloud FinOps engineers is to create visibility in the organization for cloud spend, lead the technical optimization to improve performance and efficiency and reduce the cost while scaling activity up.

Key Responsibilities

- Support Cloud Lead in establishing a FinOps squad including Finance, engineering and vendor management.
- Ensure that the right tooling and capabilities are in place
- Enable recharge, budgeting and forecasting as core capabilities of cloud management.
- Provide product teams full visibility of the cloud cost of products and empower them to be accountable for these costs.
- Establish cloud optimization frameworks and support platform administration teams in optimization of their resources.
- Define and report against KPIs for FinOps
- Ensure support for commercial and legal requirements within the cloud estate.
- Working in sprints, break down work into actionable items which drive incremental improvements in our FinOps capabilities.

Skills

- Public cloud experience (Azure, Google, AWS)
- Demonstrable experience in Cloud Cost Management.
- Experience in Cloud Governance
- Broad knowledge of Public Cloud Hosting offerings and consumption models.
- SCRUM/agile development
- DevOps Practices

Representative Certifications

- Certified in AWS; Google; ITIL, PRINCE2, TOGAF

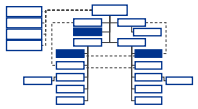
Potential Traditional IT Roles

- Cloud performance manager
- FinOps engineer

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient		✓	✓	✓
Intermediate	✓			
Foundational				
Beginner				

Cloud Team Capability Profile: AWS/GCP Platform Owner



Executive Summary

Owns the digital assets that are used by several products combined in a platform. The Platform Owner is responsible maximizing the value the platform creates, for example, reducing time-to-market of the products built on top of it or reducing development cost.

Key Responsibilities

- Support creating the overall roadmap and shapes demand for enterprise platform consumption
- Ensure platform team alignment with the business strategy, roadmap, and platform governance policies
- Has ownership and oversight of the platform instances, the core platform team, and any escalations
- Maximize value by identifying additional business outcomes the platform allows
- Preside over the technical governance board and is involved in all governance components
- Preside over design configuration decisions to ensure a seamless user experience that aligns with the platform design strategy
- Ensure Articulation, Measurement & Publishing of key business KPIs that platforms are built for

Skills

- Has a high-level view of the AWS or GCP Platform, the different solution elements and how the platform interacts with the surrounding IT landscape
- Strong experience in Digital Product management and UX
- Strong analytical and quantitative skills with the ability to use data and metrics to backup assumptions and recommendations and to drive actions
- Experience in agile team and project work (scrum)
- Continuous improvement, quality methodology and project/operations delivery skills
- Quantitative, analytical and conceptual thinking skills
- Communication, management and negotiation, and leadership skills

Representative Certifications

- AWS Certified Solutions Architect – Professional
- Professional Cloud Architect (GCP)
- AZ-900, DP-900, SC-900, CSPO (Certified Product Owner),
- PMP or PRINCE2, Agile Certified Practitioner
- AI-900

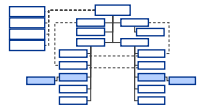
Potential Traditional IT Roles

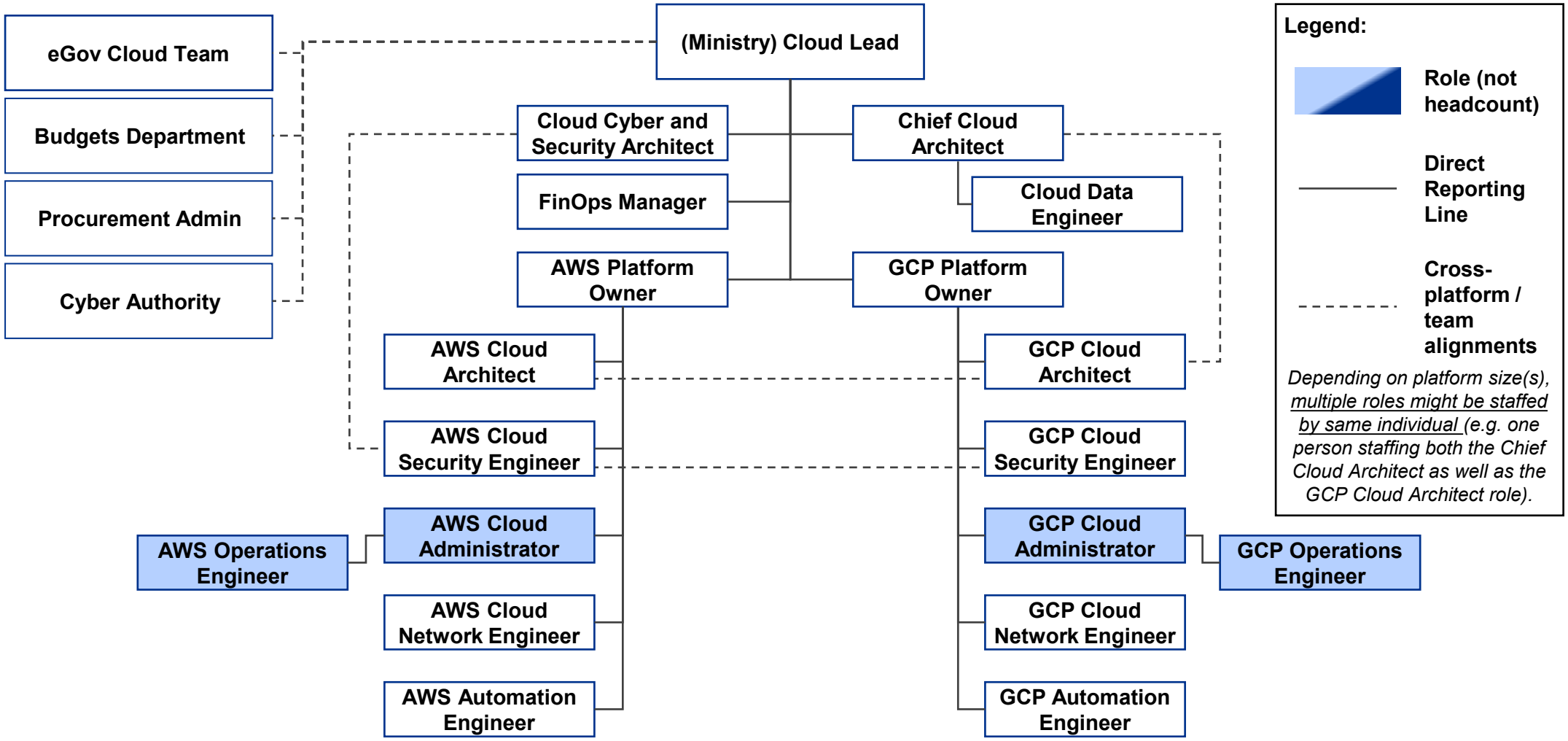
- Product Owner
- Program Manager
- Product Manager

Core Attributes

Level	Technical	Business	People	Process
Expert		✓	✓	
Proficient	✓			✓
Intermediate				
Foundational				
Beginner				

Administration & Operations Roles





Cloud Team Capability Profile: AWS/GCP Cloud Administrator

Executive Summary

Responsible for managing the instances of the cloud infrastructure services and the multiple cloud servers. Also leads, oversees and maintains, multiuser computing environment as per the requirements, configures the cloud management service and manage/monitor the cloud management services.

Key Responsibilities

- Utilize deployment environments in AWS, GCP and other cloud providers
- Monitor and maintain backups and recovery operations and services
- Support cloud servers including security configurations, patching, and troubleshooting
- Assist with upgrading, installing, and configure monitoring solution for cloud applications
- Assist with reporting on current infrastructure status, and planning for future usage
- Run discovery on the cloud resources and monitor cloud resource key metrics
- Analyze cloud resource deployment summary data
- Develop scripts for automating client/server functions
- Approve change requests associated with modifications to cloud resource

Skills

- Good knowledge on various OS (Linux, Unix, Solaris, Ubuntu, Windows etc.)
- Experience with Virtual Machines, Containers, VM environments, Cloud environments
- Good networking knowledge (OSI network layers, TCP/IP) and understanding of security protocols (e.g. SSL/TLS, Kerberos)
- Basic level of scripting knowledge
- Experience or knowledge of any monitoring tool (e.g. Kibana, Elastic Search, Datadog, Nagios etc.) and log analysis tools (e.g. Sumologic, Splunk)

Representative Certifications

- CCNA , CompTIA Cloud Essentials
- AWS Certified Solutions Architect – Associate
- Associate Cloud Engineer (GCP)

Potential Traditional IT Roles

- Windows/Linux/Unix/Storage/DB admin
- Virtualization admin
- NOC operators

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient		✓		✓
Intermediate	✓		✓	
Foundational				
Beginner				

Cloud Team Capability Profile: AWS/GCP Cloud Operations Engineer

Executive Summary

Specializes in creating and implementing cloud-based solutions such as SaaS and PaaS. Responsible for creating and employing disaster recovery solutions and assisting with continuous improvement activities. Oversees system monitoring solutions and assist field personnel on technical issues.

Key Responsibilities

- Design and build deployment environments using the AWS, GCP or any other cloud environment
- Test, improve and review the codes of the cloud solutions and then update the running code
- Monitor and maintain backups and recovery operations/services
- Support cloud servers including security configurations, patching, and troubleshooting
- Assist with upgrading, installing, and configure monitoring solution for cloud applications
- Assist with reporting on current infrastructure status, and planning for future usage
- Run discovery on the cloud resources and monitor cloud resource key metrics
- Analyze cloud resource deployment summary data
- Develop scripts for automating client/server functions
- Approve change requests associated with modifications to cloud resource

Skills

- Good hands-on experience on OS flavors (Windows, Linux etc.)
- Experience with Virtual Machines, Containers, VM environments, Cloud environments
- Good networking knowledge (OSI network layers, TCP/IP) and understanding of security protocols
- Sound programming (C, C++, Java, Python)
- Experience or knowledge of any monitoring tool (e.g. Datadog, Nagios) and log analysis tools (e.g. Sumologic, Splunk)
- Experience with automation and configuration management tools such as Puppet and Chef
- Experience with container technologies: Kubernetes, Docker

Representative Certifications

- CCNA
- AWS Certified SysOps Administrator – Associate
- AWS Certified Solutions Architect – Associate

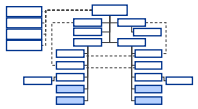
Potential Traditional IT Roles

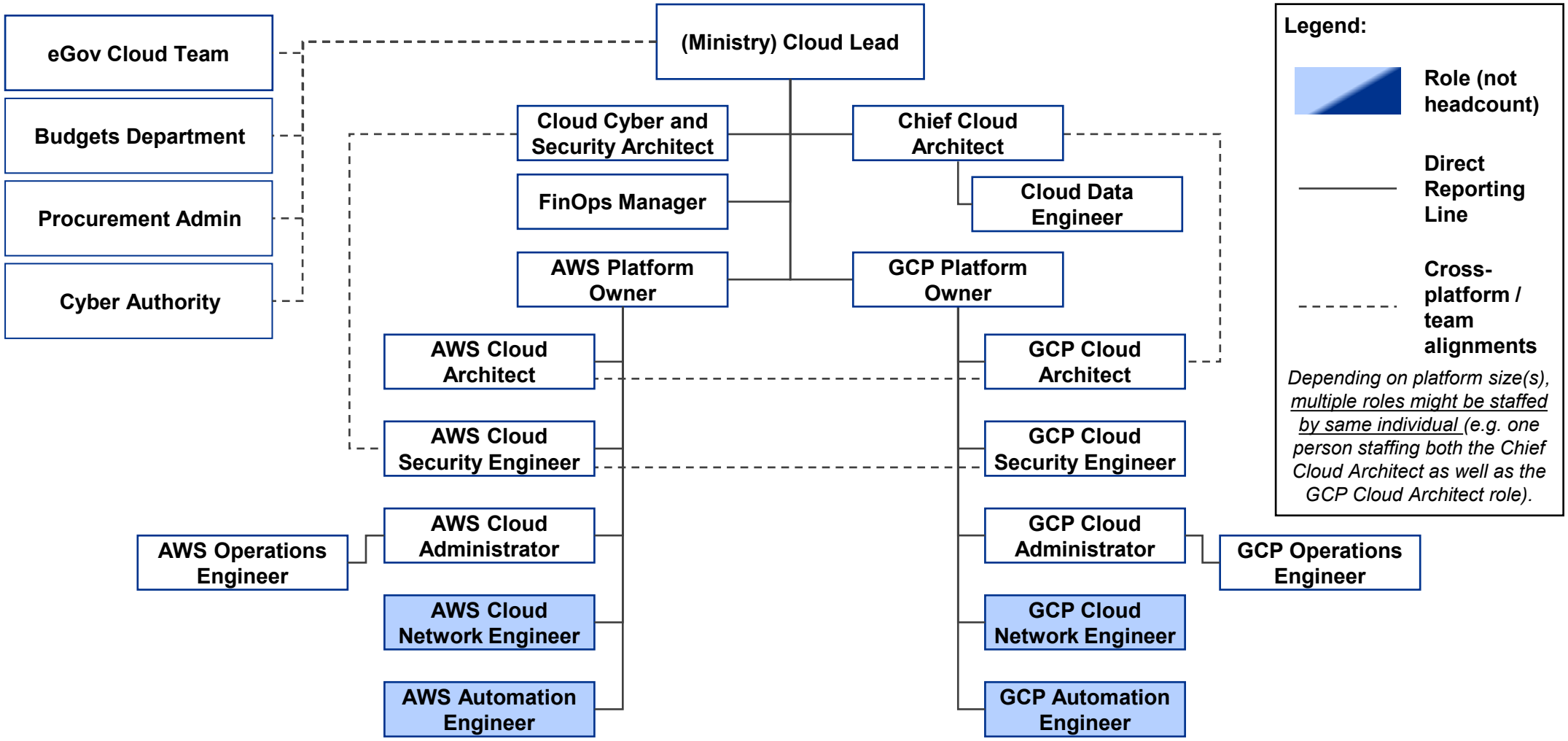
- Windows/Linux/Unix/Storage/DB admin
- Virtualization admin
- Cloud developer

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient				
Intermediate	✓			
Foundational		✓	✓	✓
Beginner				

Network & Automation Roles





Cloud Team Capability Profile: AWS/GCP Cloud Network Engineer

Executive Summary

Responsible for developing and engineering network services solutions to support the Ministries and IT organizations. Proactively provides technical support in areas, such as network automation, software-defined networks (SDN), virtual private network (VPN), local area networks (LANs), wide area networks (WANs), network security platforms, and load-balancing technologies within cloud architectures.

Key Responsibilities

- Responsible for solving network connectivity issues, and configuring firewall rules to enable secure connectivity
- Provide network configuration support and document Ministry requirements
- Work with clients to ensure that data flow diagrams are accurately completed to provide exact network connectivity
- Coordinate required changes working alongside other network and firewall teams
- Support cloud architects to provide operations and migration services that allow organizations/clients to style the availability and delivery of cloud computing services following business and technical requirements
- Responsible for the configuration and support of backbone connection over DirectConnect (AWS) and Dedicated Interconnect (GCP)
- Utilize approved tools to verify and take required action on events aggregated from network monitoring tools and Web Application Firewall
- Perform network system updates, patches, and configuration changes
- Map network layouts and configure systems to user environments

Skills

- Cloud knowledge and applied experience
- Deep knowledge of Cloud Architectures, and Cloud Network technologies
- Expertise on software-defined networks (SDN), LANs, WANs, network security platforms etc.
- Knowledge on advanced networking architectures and interconnectivity options (e.g. IP VPN, MPLS/VPLS)
- Understanding on network security features, including WAF, IDS, IPS, DDoS protection, and Economic Denial of Service/Sustainability (EDoS)

Representative Certifications

- AWS Certified Advanced Networking
- CCNA Cloud
- Cisco Certified Network Professional Level (CCNP)
- Professional Cloud Network Engineer (GCP)

Potential Traditional IT Roles

- Network admin
- Network specialist/engineer
- Network solutions architect

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient	✓			
Intermediate			✓	✓
Foundational		✓		
Beginner				

Cloud Team Capability Profile: AWS/GCP Automation Engineer

Executive Summary

A full stack engineer responsible for designing and implementing technologies and processes for automating the provisioning and maintenance of cloud-native systems in a distributed, cloud infrastructure.

Key Responsibilities

- Participate in the design of service automation in cloud towards Infrastructure-as-code (IaC)
- Plays a pivotal role in driving Continuous Integration and Continuous Delivery (CI/CD)
- Execution of process engineering and operational improvement initiatives for automation tooling focused on cloud
- Drives automation across all provisioning and management tasks for infrastructure running in cloud environments (Account Vending Machine/Project Factory)
- Involve and drive government's evolution towards DevSecOps and Agile Transformation
- Execution of process engineering and operational improvement initiatives for automation tooling focused on cloud
- Performs script maintenance and updates due to changes in requirements or implementations
- Builds automated deployments for consistent software releases with zero downtime (through build process, packaging, testing and automatic deployment)
- Participates in proof-of-concept analysis and vendor evaluations related to automation tools

Skills

- Cloud integration platforms and tools
- Sound programming (C, C++, Java, Python)
- Strong scripting and task automation skills utilizing Python, Perl, Ruby, Shell
- Experience working with Microservices development and design patterns
- Understanding of Automation tools: Jenkins, Terraform, Ansible, Chef
- Deployment and configuration Management tools (Chef, Puppet, Salt, Ansible, or NPM)
- Experience with Dockers, Containers, Microservices and Kubernetes
- Good knowledge on various OS (Linux, Unix, Solaris, Ubuntu, Windows etc.)

Representative Certifications

- AWS Certified Solutions Architect – Associate
- AWS Certified DevSecOps Engineer – Professional
- Professional Cloud DevSecOps Engineer

Potential Traditional IT Roles

- Automation and integration engineers
- Full stack developers

Core Attributes

Level	Technical	Business	People	Process
Expert				
Proficient	✓			
Intermediate		✓	✓	✓
Foundational				
Beginner				