Unit 1 Initial Post

Initial Post: AWS vs Google Cloud – A Strategic and Critical Comparison

Although AWS and Google Cloud Platform (GCP) are both leading cloud providers, their approaches reflect fundamentally different strategic priorities. AWS dominates in breadth, offering over 200 services across all verticals, but its complexity can lock organisations into its ecosystem (Borra, 2024). In contrast, GCP is strategically focused on open-source integration, AI, and data analytics, positioning itself as a more modern, developer-centric platform (Google Cloud, 2024).

A key point of differentiation is interoperability. GCP actively promotes multi-cloud flexibility, evident in tools like Anthos, while AWS is often critiqued for promoting vendor lock-in through proprietary interfaces and tools (Megaport, 2023). This can impact long-term agility, particularly for businesses seeking to avoid dependency on a single provider.

Another overlooked aspect is platform bias in learning and adoption. AWS benefits from being first to market and dominates training resources, certifications, and recruitment pipelines. This popularity reinforces its position, even when GCP may offer technically superior or more cost-effective services in areas like real-time analytics or carbon-aware computing (Megaport, 2023; Google Cloud, 2024).

Critically, the choice between AWS and GCP should not just be technical, but strategic. Organisations should assess how each provider aligns with their values: AWS for deep infrastructure control and enterprise maturity, or GCP for innovation, openness, and sustainability (Borra, 2024; Megaport, 2023).

References :

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Unit 2: ROCCA and TOGAF Implementation in Government Agencies

In their 2019 study, Anggraini, Binariswanto and Legowo argue that **TOGAF**, while widely adopted for enterprise architecture (EA), is often too abstract for public sector use and lacks actionable guidance on aligning architecture with government objectives. They introduce the **ROCCA (Result Oriented Capability and Component Architecture)** framework to bridge this gap. ROCCA complements TOGAF by introducing a focus on strategic outcomes and capability measurement, which is crucial in government agencies that must demonstrate value creation and service improvement (Anggraini, Binariswanto and Legowo, 2019).

The integration of ROCCA and TOGAF allows architecture components to be mapped directly to measurable results, supporting public accountability. This approach aligns with broader literature on outcome-driven public sector IT strategies, where enterprise architecture must not only support technical efficiency but also advance policy outcomes (Janssen and Kuk, 2016). ROCCA's capability-driven structure helps tailor EA to real-world government needs by linking IT initiatives to citizen-centric performance goals, an area where TOGAF alone is limited.

Though I work in the private sector, I experienced a similar challenge at **Miele Professional** during the rollout of a digital monitoring solution for industrial systems. We used a TOGAF-style framework to define our technical architecture, but lacked a structured way to communicate the impact of the solution on measurable service outcomes. A results-oriented framework like ROCCA could have enhanced our ability to frame the system's benefits in terms of customer performance, driving stronger alignment between business goals and technical implementation.

The article also highlights common barriers in government agencies, such as lack of technical capacity, poor change management, and unclear policies, which mirror those found in other EA studies (Saha, 2009). These findings reinforce the idea that successful EA adoption depends not just on frameworks, but on culture, leadership, and institutional readiness.

Overall, the hybrid **ROCCA–TOGAF approach** offers a promising way forward for public agencies and possibly complex private organisations. It enables better strategic alignment, measurable value delivery, and stronger justification for digital transformation initiatives.

References

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Unit 3: Summary Post: Microsoft Visio as a Preferred Cloud Design Tool

In the context of complex enterprise IT environments, **Microsoft Visio** remains a highly effective and practical cloud design tool. Its strengths lie in its integration with the Microsoft 365 ecosystem and its ability to support structured, collaborative cloud architecture planning.

In my current work environment, characterised by structured processes, cross-functional teams, and multiple joint ventures, tools that provide consistency, compatibility, and formal documentation are prioritised. Visio meets these needs well, particularly in early-stage planning, where architecture diagrams must be reviewed and shared across departments such as infrastructure, security, and compliance. Its compatibility with Microsoft Teams and SharePoint supports this level of structured collaboration (Microsoft, 2024).

Unlike newer design tools that automate live cloud diagrams, Visio enables controlled, template-based modelling. For industries with strict regulatory and governance requirements, this manual design process supports better auditing and intentional review, an important advantage in environments where automatic cloud discovery may be inappropriate. According to NIST (2020), having clear, traceable architectural documentation is essential for organisations operating under compliance frameworks.

Moreover, Visio includes official templates and icons for Azure architecture**,** ensuring designs follow vendor best practices. As Lwakatare et al. (2019) observe, early-stage clarity and shared understanding are key to reducing system rework, which aligns with how Visio is used to visualise and validate proposed cloud integrations in our projects.

In summary, while automation-focused tools may suit fast-moving DevOps cultures, Visio remains a superior choice for enterprises needing structured planning, governance support, and tight integration with Microsoft-based workflows.

Wordcount: 244

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Unit 3: Response Post:

Hi Farhad,

Your analysis of AWS CloudFormation’s strengths is insightful; however, industry best practices often favor **HashiCorp Terraform**, especially for multi-cloud or hybrid-cloud strategies.

1. True multi-cloud flexibility
   Terraform supports numerous providers—AWS, Azure, Google Cloud, Kubernetes, and more—through a uniform workflow using HCL, which simplifies deployment across diverse environments (Kyadasu, 2024; Gudelli, 2023). This contrasts with CloudFormation’s AWS-only focus, which can hinder cross-cloud portability.
2. Modular architecture and ecosystem
   Terraform’s modular system and extensive open-source registry encourage reuse and community-driven best practices, enhancing maintainability and onboarding compared to CloudFormation’s more limited module support.
3. State management and operational control
   Terraform uses a flexible, backend-agnostic state file system that supports remote, encrypted storage and locking—vital for distributed teams managing generational changes across clouds. CloudFormation’s tightly confined AWS state handling offers limited flexibility.
4. Independent academic validation
   Empirical studies confirm Terraform’s superior cross-platform manageability and scalability, particularly in multi-cloud scenarios (Moses, 2025).

While CloudFormation shines in AWS-centric contexts, Terraform’s portability, community support, and enterprise-grade features make it a more strategic choice in modern, diverse cloud infrastructures.

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