

Taming cloud complexity with a cloud management platform



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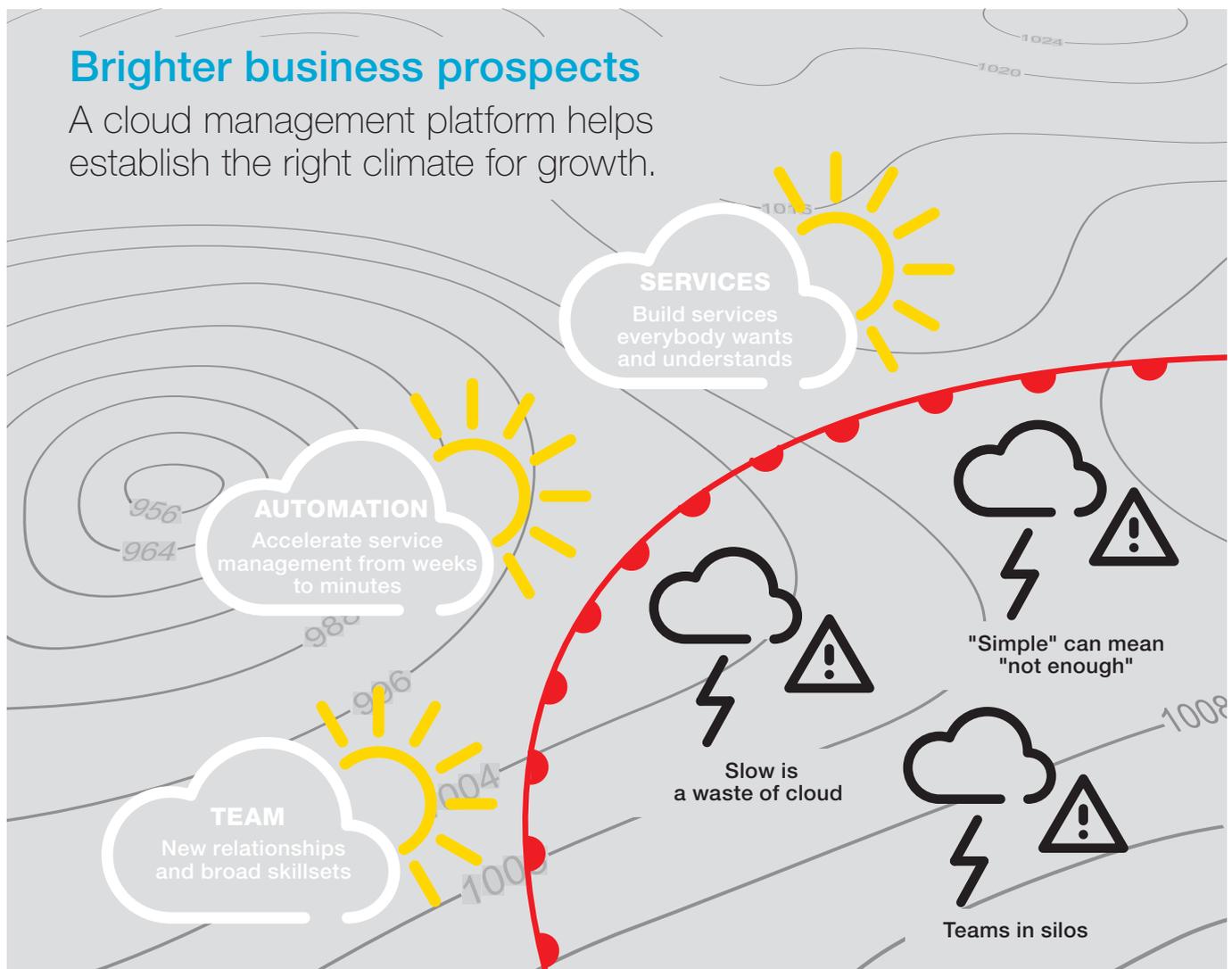
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Introduction

Cloud is now widely regarded as the best way for enterprises to align their IT assets with their business goals. While it's true that a good hybrid cloud setup is a great way to make IT a value-producing business service, the complexity of setting up and running a hybrid cloud is considerable.

The complexity of hybrid cloud setup and management derives from the need to continuously strategize deployment models, technology stacks, and integration capabilities, as well as the high degree of automation needed for a hybrid cloud to perform effectively.

Providing the tools necessary to meet the demand for effective cloud management is a rapidly emerging enterprise, with the best of these forming coherent cloud management platforms (CMPs). Choosing and using a CMP wisely and effectively is itself a challenge.



Foundation 1:

Plan services everyone wants to use

Get the largest number of users to adopt cloud services as quickly as possible by offering a self-service catalog that is immediately understandable and desirable to the widest range of users. A good service catalog helps ensure internal promotion of those services, and encourages useful feedback from users.

Services can range from simple virtual machines (VMs) to the most complex n-tier application architecture deployments, middleware as a service (such as database as a service), and applications as a service (such as Alfresco as a service or SharePoint as a service).

Whatever the range, the key to agility is to achieve full automation of run services such as supervision, backup, domain name service, assets, and configuration management database, as well as the deployment of “dev” components such as web servers, apps servers, and databases.

“ The key to agility is to achieve full automation of run services. ”

Pitfalls

One major pitfall involves trying to reduce complexity by avoiding full technical integration into a coherent ecosystem. The result is nearly always a service that is too constrained to be useful. Services should be designed top down (putting users' requirements first), not bottom up (putting technology first).

Services that are too simple in this sense are those that, for instance, require manual processing during the provisioning cycle, post-provisioning actions. It could also mean virtual machines that do not propose middleware options or lifecycle actions.

Services should be designed top down, not bottom up.

Cloud service catalog example

| | | | |
|--|--|---|--|
| | | | |
| LAMP 1-TIER Virtual Private | LAMP 1-TIER Multi-Environment Virtual Private | LAMP 3-TIER Virtual Private | LAMP 1-TIER Public |
| Windows Server Private | Windows Physical Server Private | Windows Server Public | Red Hat Linux Server Private |
| Microsoft Web IIS Virtual Server Private | APACHE Web Server Virtual Private | J2EE Server Virtual Private | .NET 1-TIER Virtual Public |
| Oracle Database Server Virtual Private | SQL Database Server Virtual Private | MySQL Database Server Virtual Private | |

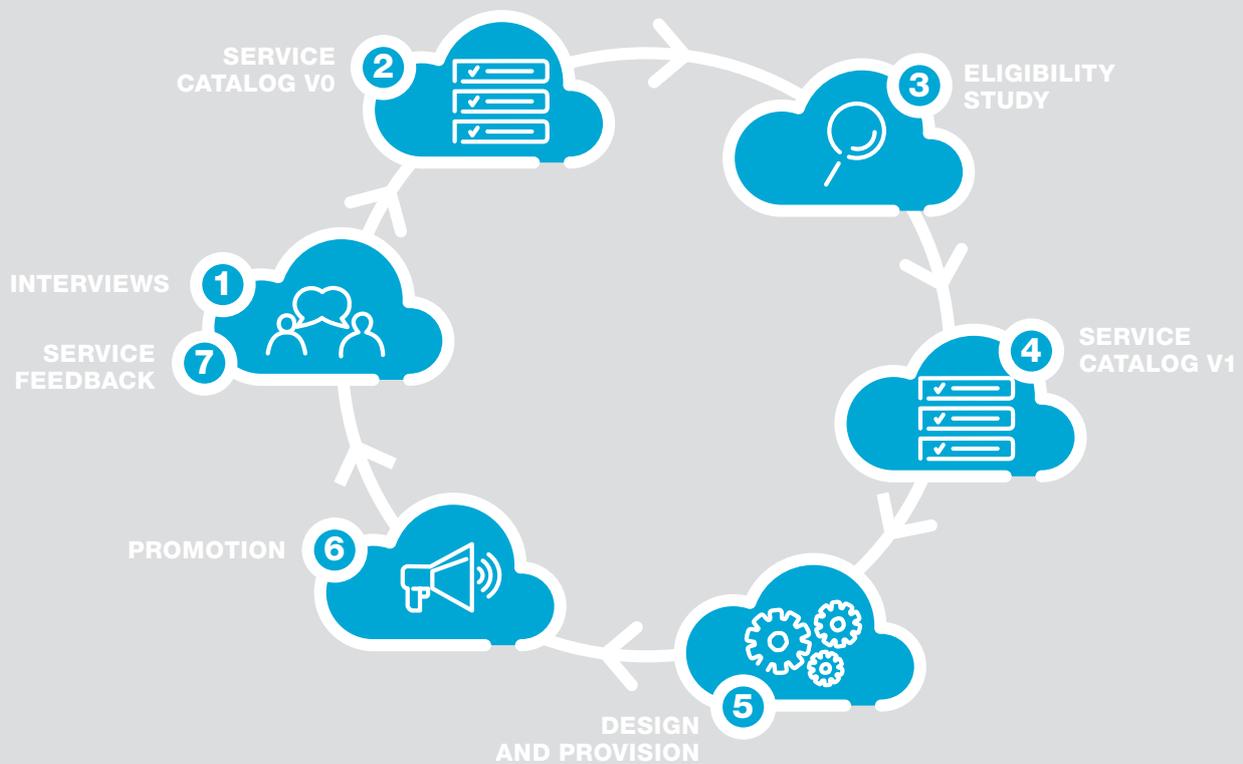
How to do it

A hybrid cloud setup is only valuable in so far as it helps its users deliver their services to the organization more efficiently and effectively. In other words, your cloud should be designed as a service-provisioning and lifecycle factory supporting users as they deliver their own value to the organization.

Getting the design of services right involves a series of steps that uncover users' needs, rationalizes them into a service catalog, and then identifies the resources to deliver them.

Cloud service design loop

Seven steps to a service catalog that meets users' needs.



‘ Your cloud should be designed as a service-provisioning and lifecycle factory. ’

1 INTERVIEWS

Tailoring a service catalog should start with face-to-face interviews with every kind of user in the IT value chain. These interviews should concentrate on finding which services are taking too long to deliver for day-to-day tasks, organizational and process issues, as well as users' service requirements.

These interviews are best conducted by an external cloud consultant in collaboration with the future service catalog owner of the private cloud.

2 SERVICE CATALOG V0

V0 of the service catalog consists of broad, often overlapping requests from potential users that an experienced cloud project team can then rationalize into a set of service labels.

3 ELIGIBILITY STUDY

Each service label is then subjected to an eligibility study using SMART parameters (Specific, Measurable, Acceptable, Relevant, Time-bound) to identify priority order. The eligibility study requires input from all stakeholder groups, but particularly end users, the IT team, service catalog owners, and automation experts. Specific parameters will vary between organizations, but often include:

- Number of requests for specific services
- Number of change requests for specific services
- Estimated gain linked to automation of a specific service
- Complexity of automating a specific service
- Organizational impact of the automation of a specific service
- Alignment of a specific service with technical acceptance matrix
- Value statement for the organization
- Impact on the security policy

4 SERVICE CATALOG V1

The output of the eligibility model is the target for V1 of the service catalog. Compiling V1 requires exhaustively detailing the components needed to provide these services, all lifecycle actions, and all necessary service levels. This process outputs specifications for service design, plus roadmaps for services that should be delivered as a high priority in order to retain the engagement of users interviewed in step 1.

5 DESIGN AND PROVISION

Conceptualize V1 of the service catalog in thematic workshops. The goal is to set parameters and integrate the service components necessary for provisioning cloud services according to service level agreements. Achieving clarity and full buy-in from the IT team is the critical goal in this step. The process outputs full blueprints for service design, including the core service and operations components needed to meet service level agreement and lifecycle requirements.

6 PROMOTION

Make sure everyone in the organization knows about your new cloud services and how to access them. This requires a communication strategy that should include gathering customer experience and satisfaction data.

7 SERVICE FEEDBACK INTERVIEWS

Once services are in place and being used, a second round of interviews starts a virtuous feedback loop that feeds the development of the next generation of the service catalog. The output from this round of interviews should also be used to set key performance indicators.

Foundation 2:

Learn to evolve at the speed of cloud

Cloud is a response to the business need for agility, flexibility, and innovation. To ensure a cloud setup actually delivers these advantages, it must be able to evolve quickly on the technical and service catalog sides. This requires cloud thinking both in terms of team organization and design features.

Pitfalls

It's surprisingly common to find cloud setups lacking the very characteristics that make cloud valuable to businesses. Without the automation and specialized operating model required to enable agility, a cloud setup may be little more than a virtualization farm.

‘ Give users
the services
they need
in minutes
instead of
weeks. ’

How to do it

Set up a fully automated assembly line to build complex services quickly and speed up the management process so users get the services they need in minutes instead of weeks. The average time required to get a virtual machine ready for use manually is six to eight weeks from the initial request. An agile private or hybrid cloud setup can do the same in minutes by automating multiple steps.

Examples of steps to automate

- Provision virtual machine (VM) based on size request
- Create, update, and close changes in the service management tool (ITSM)
- Add the new Virtual Machine in the asset management tool
- Add an IP address in IP address management database
- Create a DNS entry
- Deploy a backup agent and configure backup
- Deploy a monitoring agent and configure monitoring
- Create, assign users, integrate passwords in the company directory
- Add a host to the lifecycle management tool
- Deploy and configure software onto the newly created VM using preapproved security protocols and financial quota mechanisms

An agile cloud has these features

Achieving a high level of agility requires a cloud setup with the following features:

1 AUTOMATION

Highly integrated and fully automated workflows are the key to agility and reducing time to market and failure.

2 INFRASTRUCTURE LAYER

The infrastructure components needed to enable automated deployment and configuration of additional capacity in Compute, Storage, and Network. This infrastructure may be physical boxes, or virtualized.

3 SECURITY MANAGEMENT

Security needs to be embedded in all layers and a controlled, standard deployment model followed to ensure that the automatic deployment of applications is safe and controlled. This requires preapproved protocols and exhaustive data classification.

4 TOOL ECOSYSTEM INTEGRATION

Building an effective CMP requires integrating a complex ecosystem of tools, including: IT Service Management, Configuration Management Databases, IP Management, Security Information and Event Management, and Identity and Access Management. This is one of the most time-consuming and critical aspects of cloud deployment.

5 MANAGEMENT PORTAL

An effective management dashboard must be included in setup and design planning.

6 SELF-SERVICE PORTAL

A user-friendly portal enabling on-demand services is a critical element of a cloud setup from the perspective of service users.

7 CONFIGURATION MANAGEMENT TOOL

To standardize the configuration of resources and their deployment, regardless of the operating system, hardware, and virtual architecture.

8 SERVICE CATALOG

Creating a good service catalog – one that meets users' needs – is the first priority for any cloud deployment. Getting it right drives usage. Getting it wrong undermines your cloud deployment value proposition.

9 CONNECTIVITY PLATFORM

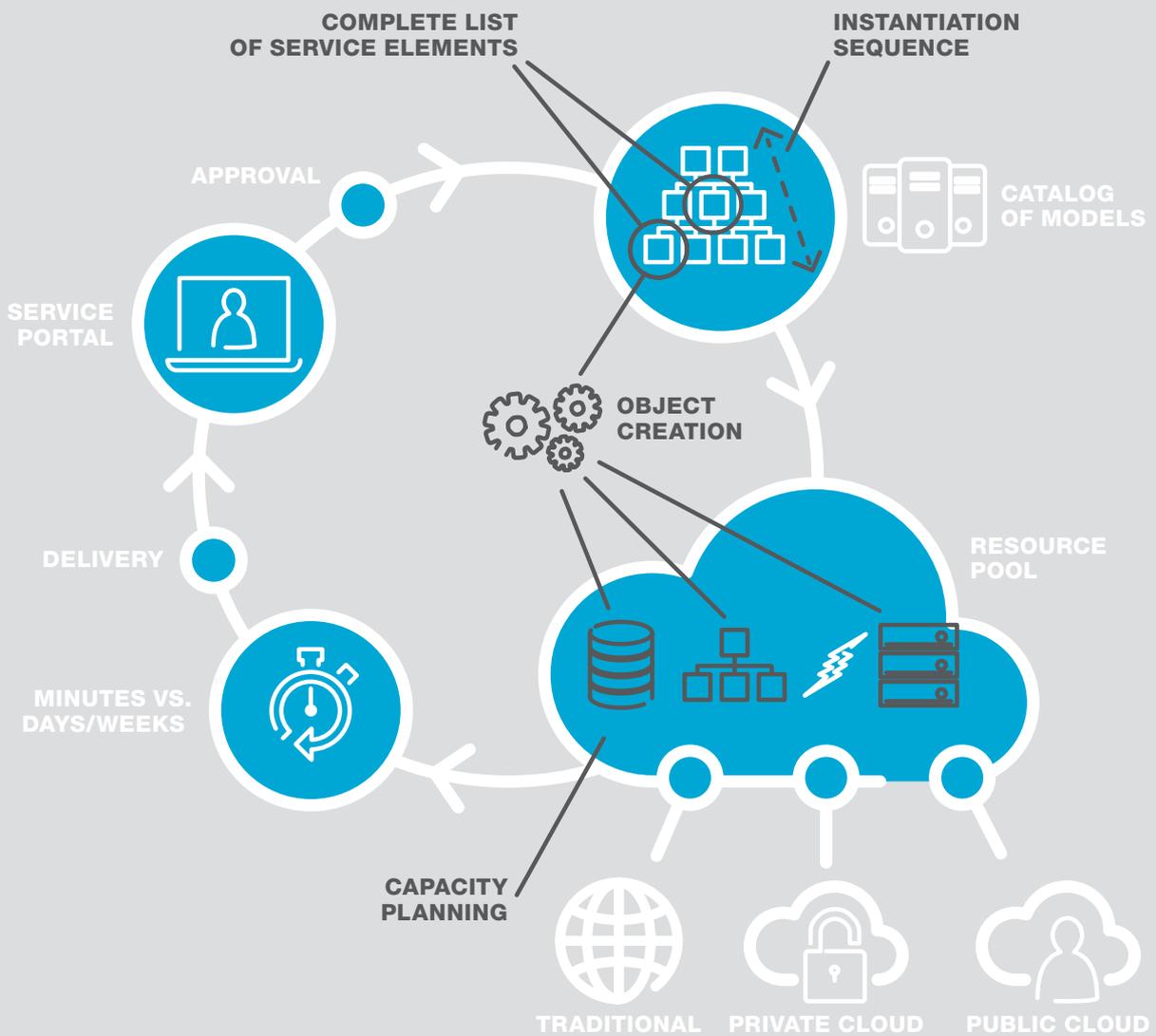
It is a common but dangerous mistake to treat connectivity as separate from the main cloud platform. The capacity to handle a wide range of access channels securely should be considered during the requirement phase, not later.

10 FINANCIAL/BILLING PLATFORM

Failing to track usage often leads to an uncontrolled inflation of deployment and demands, which can mean uncontrolled cost inflation.

Automation workflow

Delivering requested services rapidly depends on an automated assembly line.



Foundation 3:

Assemble a cloud super team

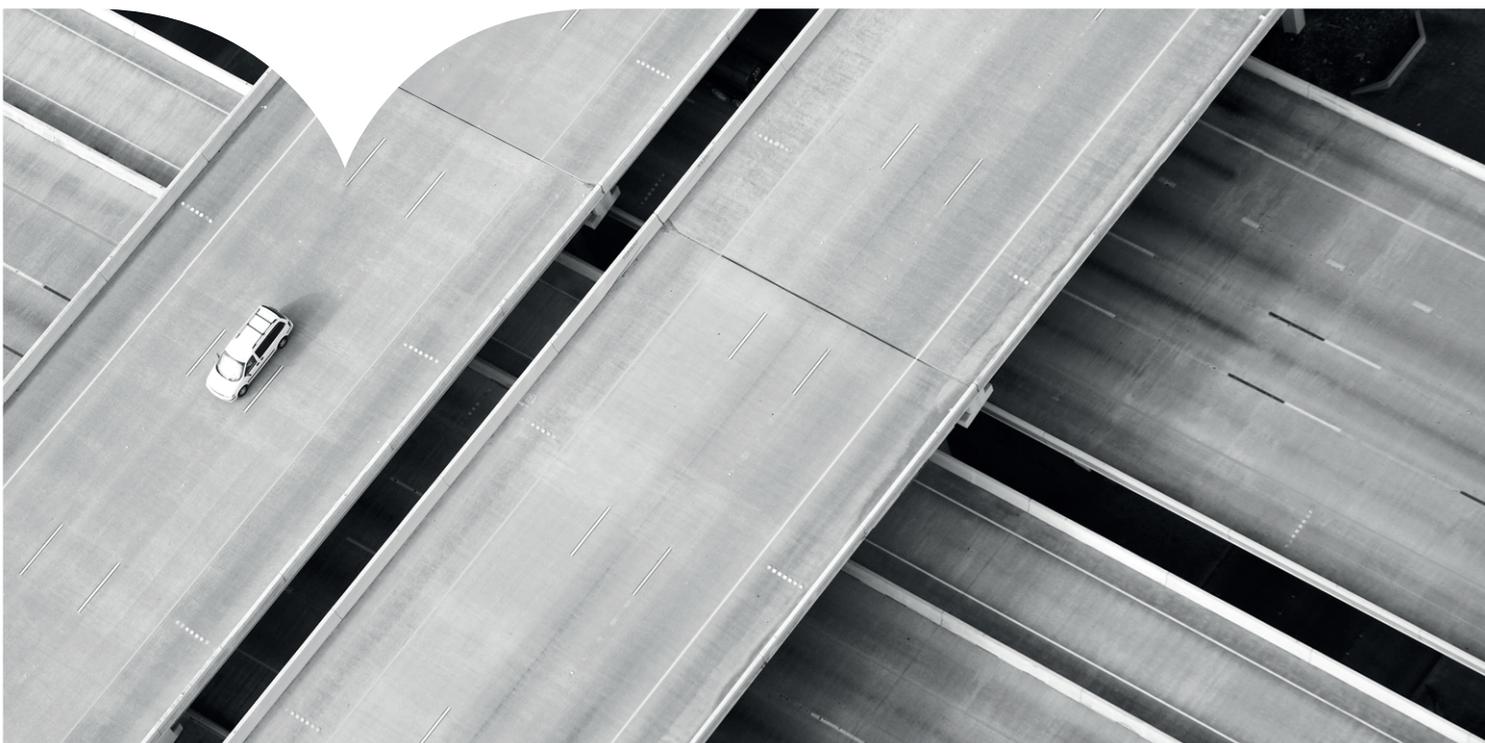
A successful cloud is a set of tightly integrated solutions in compute, storage, network, and software. Building and maintaining this level of integration takes a team with broad skillsets that is itself tightly integrated.

Pitfalls

Territorial conflicts can make implementation very slow if not impossible. Trying to build a cloud solution with existing, siloed team structures makes it extremely difficult to achieve the necessary automation in provisioning and management.

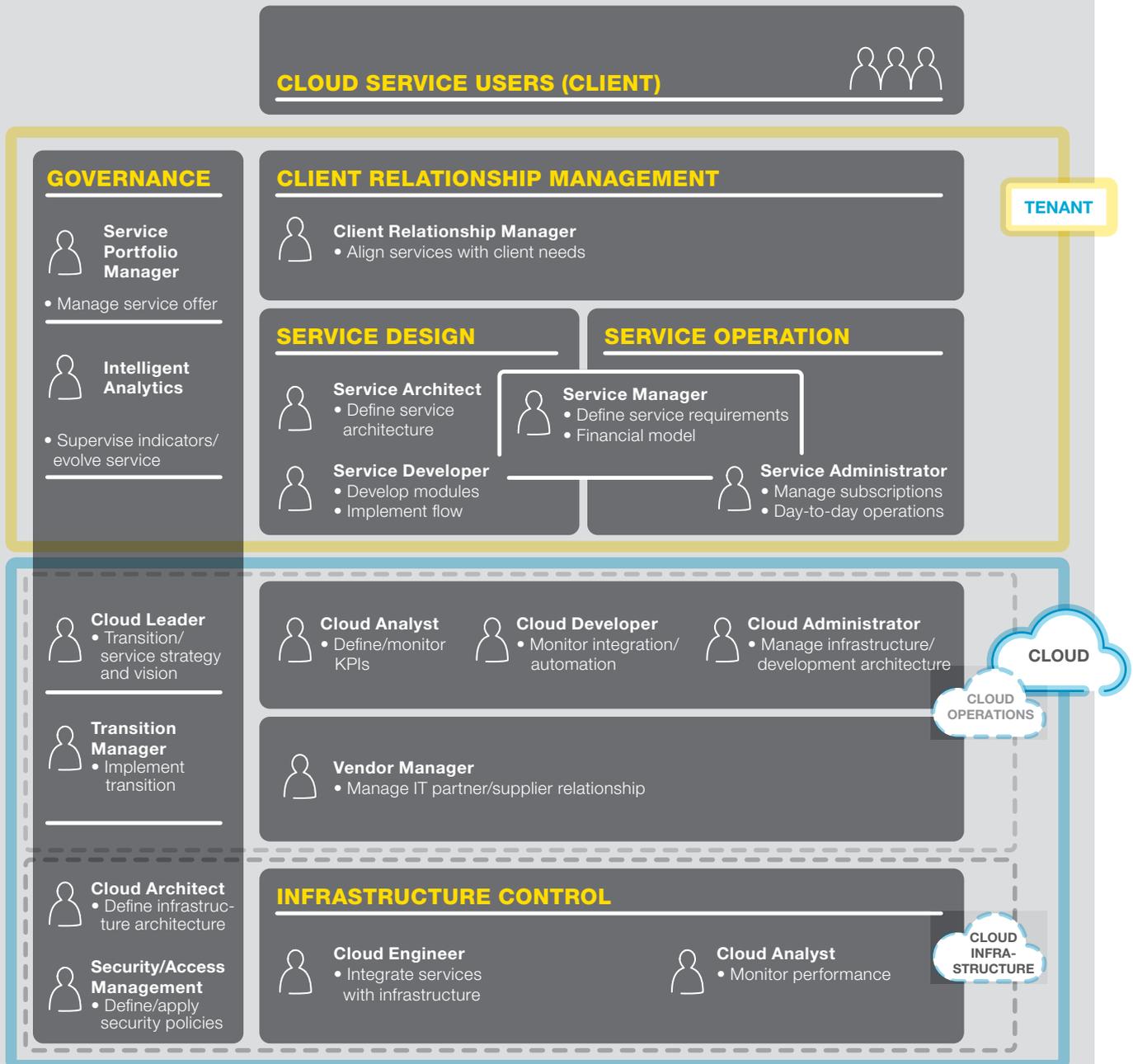
How to do it

Start with an operating model that builds collaboration between infrastructure developers and architects, and business teams by grouping stakeholders from both into new relationships.



Cloud operating model

Promote agility by grouping stakeholders into cross-functional teams.



The talent you need for a strong build and run team

CRITICAL ROLES

The best way to ensure a cloud implementation remains flexible enough to continue meeting your business needs is to establish a build and run team with strong talent in these critical roles:

Service portfolio manager

The service portfolio manager's role is to maintain and use the eligibility matrix to decide which services make sense, and then deliver suitable guidance to the architect responsible for building them.

Transversal cloud and automation architect

Designing the best services requires top level skills and the temperament and ability to engage in continuous dialogue with subject matter experts.

Orchestration expert

Building the services you need at a rapid pace requires an individual highly skilled at orchestrating workflows so that they correspond to resource availability.

Cloud architect

The cloud architect drives the technical evolution of the platform by translating the business requirements (new services needed) into an efficient solution capable of future evolution. The cloud architect should be part of the governance structure because the role includes considering the supportability of the products and development required and the financial impact of these evolutions in the refresh cycle.

CRITICAL SKILLS

These team members listed on the left will need broad skillsets to work together effectively. You should be looking for:

Discipline bridgers

Individuals with "bridge" profiles. For example, compute team members will also need deep knowledge of both storage and network, and network team members will need to be able to handle automation and integrate storage networks on top of traditional data networks.

Trans-discipline scripters

Cloud infrastructure, by definition, needs to integrate new services. These new services will consume different kinds of infrastructure resources, and designing and provisioning them requires advanced automation. Team members capable of trans-discipline scripting will be needed to create these workflows.

DevOps thinking and automation skills

The DevOps approach thrives on good cloud infrastructure, so a cloud team needs to know how to work with application developers.

In summary:

Putting it all together

The three goals outlined in this document are the fundamental requirements for a cloud management platform capable of unlocking the potential of a private or hybrid cloud. Briefly, they are:

1. Services everybody wants and understands
2. Automation to accelerate service provision
3. Team integration and broad skillsets

The tools, people, and ways of working needed to achieve these three goals work in concert and reinforce each other. Together, they form the framework for a private or hybrid cloud setup that gives an enterprise agility, quality, and value for money.

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