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WORK at LIGHTSPEED™

Designing Cloud Portable Workloads

GIRI PADMANABH
SR. DIRECTOR
ServiceNow

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servicenow

Speaker Introduction



NAME: Giri Padmanabh

TITLE: Sr. Director

FUNCTION: Development

COMPANY: ServiceNow

EXPERIENCE: 25 years

EXPERTISE: Service Catalog, IT Operations and Cloud Orchestration

ACHIEVEMENTS: Founder and CTO of ITapp. Re-imagined ITapp onto ServiceNow platform

CURRENT PROJECTS: Engineering owner for Cloud Management

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Agenda

- Introduction
- Workload Definition
- Benefits of Portable Workloads
- Designing Cloud Portable Workload Models
- Demo
- Q & A

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Session Overview



Objectives

- Designing Cloud Portable Workloads

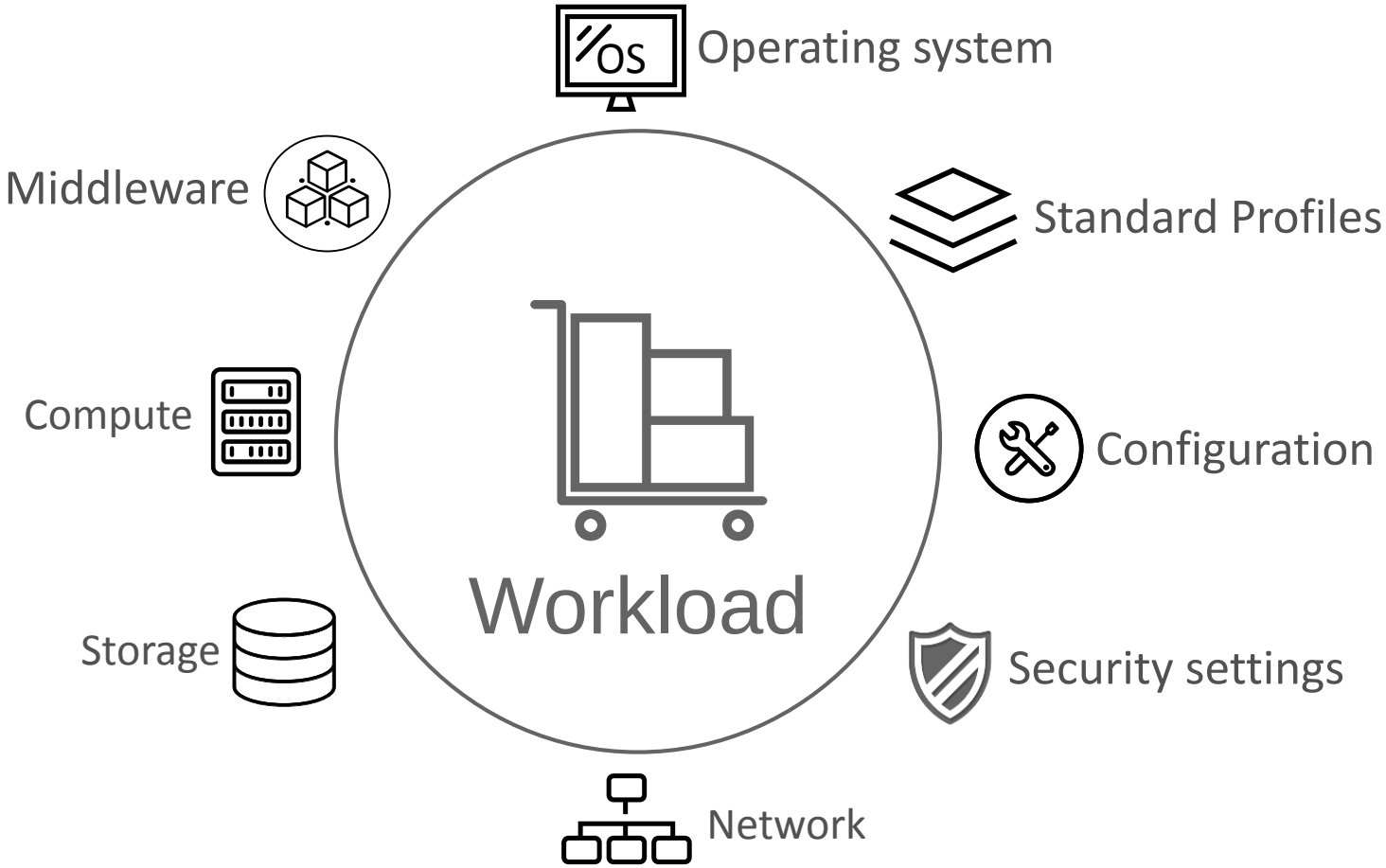


What You Will Learn

- Understand the environment and challenges facing cloud agnostic deployments
- Gather key lessons related to cloud portable deployment models
- Learn about ServiceNow cloud management features to support cloud portability

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Definition of a Workload



Workload is a set of components that support an application

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Benefits of Portable Workloads

Enterprises need the flexibility to vary deployment models that match changing business opportunities.



Cost



Autonomy



Security



Geo Fencing



Performance

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Challenges for Achieving Portability of Workloads

Portable workloads can run in multiple environments without changes.

Critical factors for portability are:

- Cloud agnostic deployment of operating system and middleware
- Cloud abstracted orchestration framework for provisioning and change management
- Standardization of cloud management, policy, and governance through abstraction

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Solution

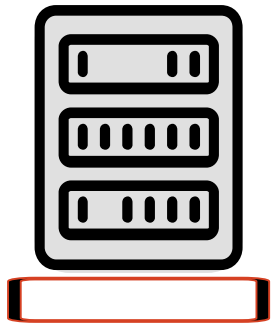
Simplest way to achieve portable workload is to not get locked into vendor-specific features

A. Cloud Abstraction
B. Cloud Agnosticism
C. Unified Interface

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Abstract Cloud Datacenter

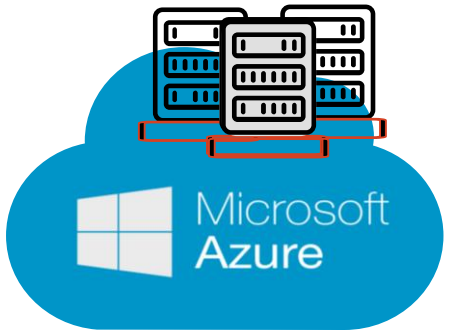
Abstract Cloud Datacenters	Logical abstraction for Cloud datacenter capabilities



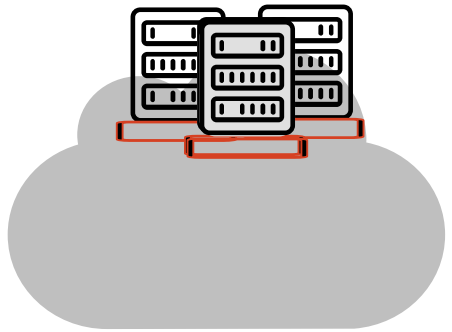
Fundamentally datacenter is:

1. A resource, where it can host other resources
2. Identified by a location
3. Exposes certain set of hosting capabilities
4. Has restrictions in terms of networks, zones and templates







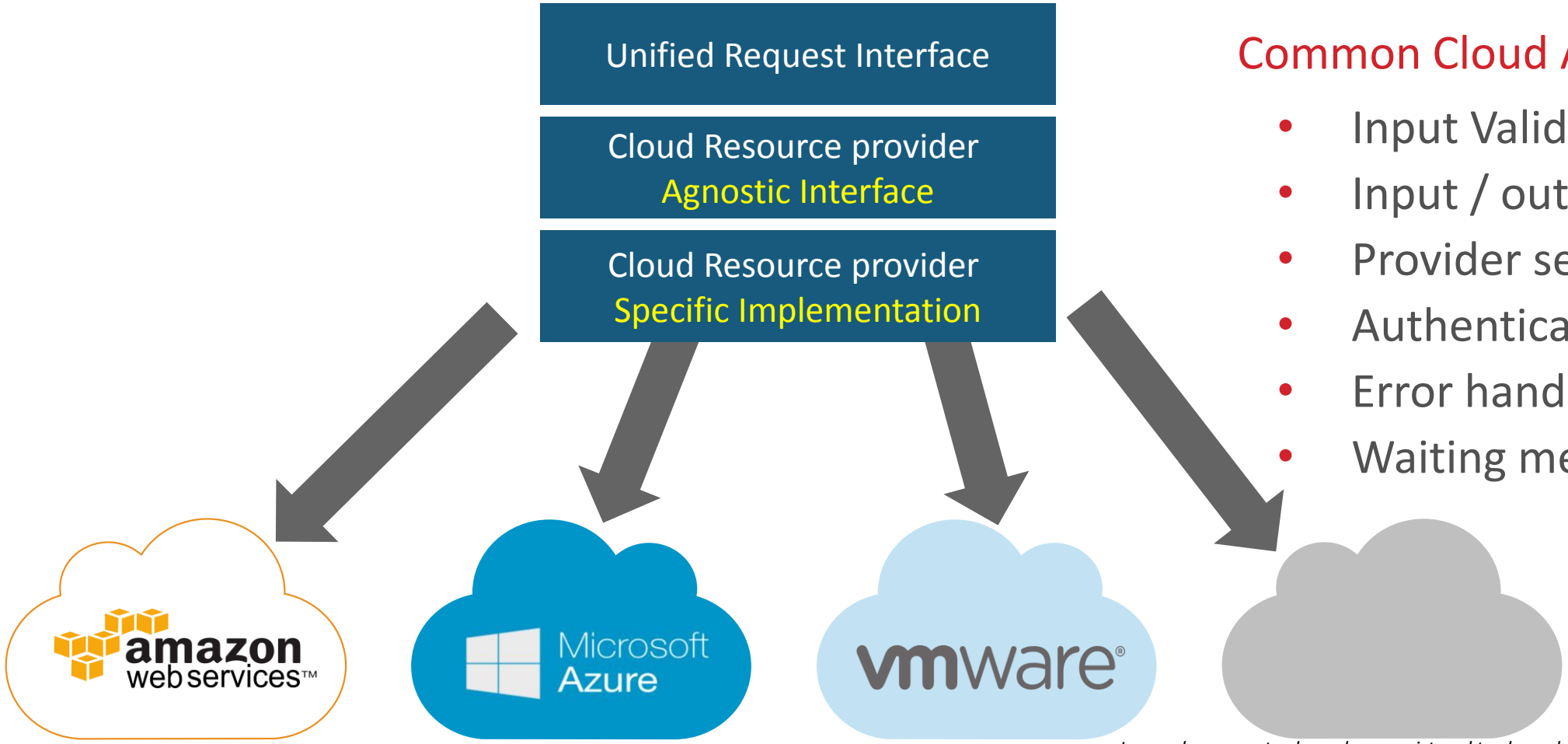


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Abstract Cloud API

Abstract Cloud API	Interface driven API with provider specific driver implementations



Common Cloud API Services

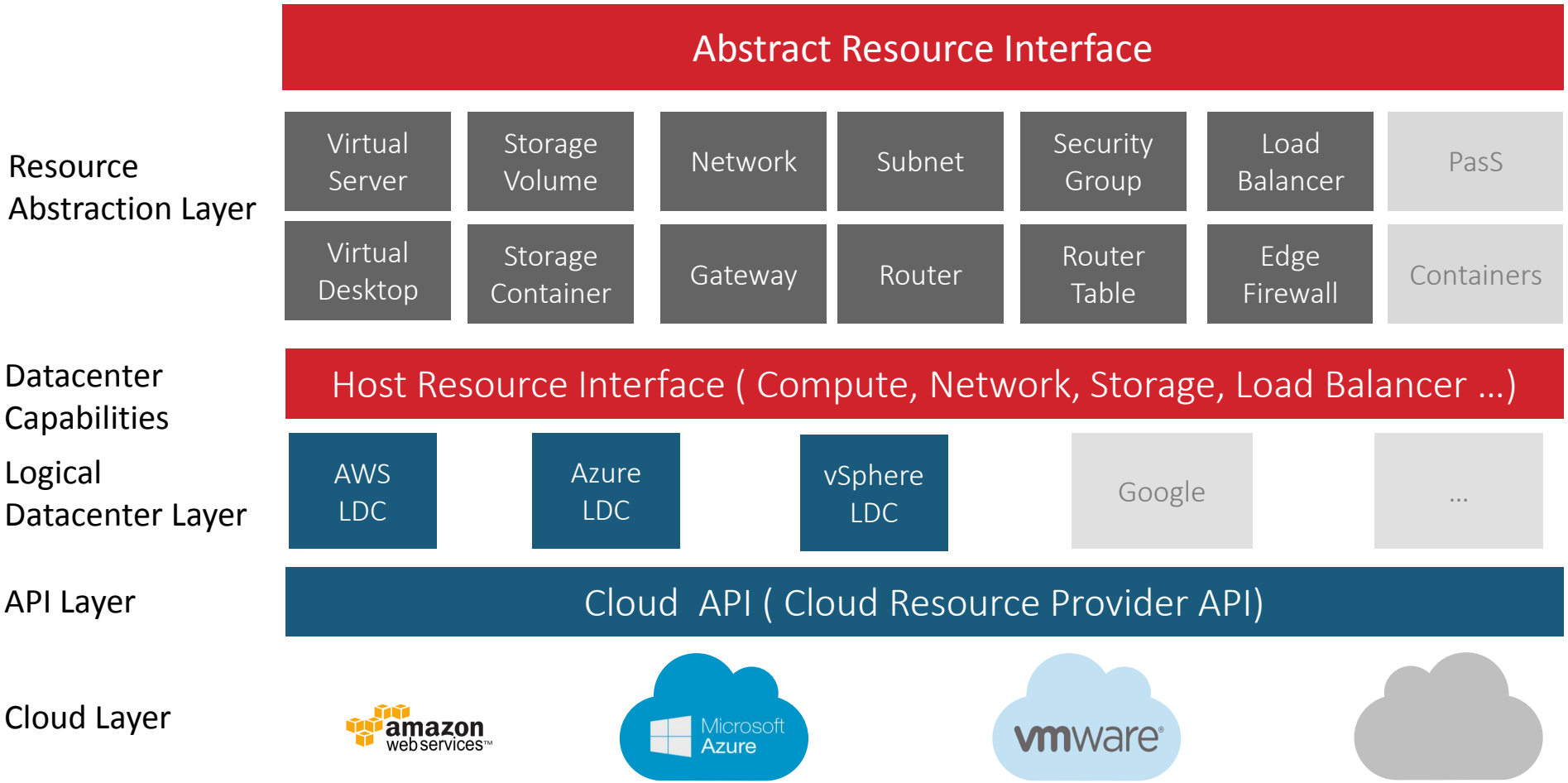
- Input Validation
- Input / output Transformation
- Provider selection
- Authentication handling
- Error handling
- Waiting mechanism

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Abstract Resource Model

Abstract Resource Model | Common Resource models to represent cloud resources



Cloud Agnostic Modelling for Portability

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Abstract Resource Pool

Abstract Resource Pools

Abstract Pools with filters for cloud resources

Common Resources Pools



Projects, Business Services , Cost Centers



Keys, VM Folders, User Groups



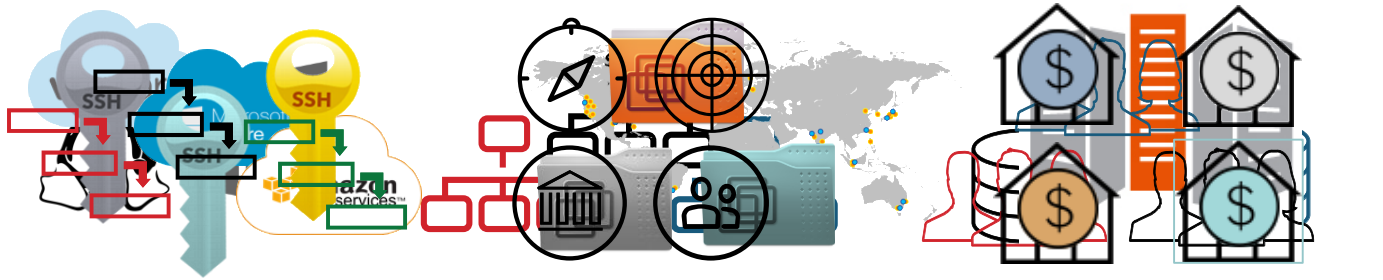
Compute, Network, Storage



Cloud Accounts, Regions, Zones

Standardized Pool Filters

- All
- My Cloud Accounts
- All Folders
- My Folders
- All
- My Groups



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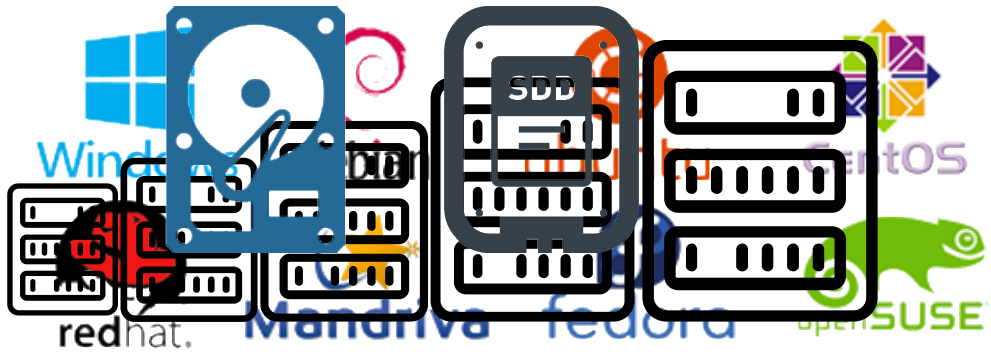
Abstract Resource Profile

Abstract Resource Profiles

Standardize and abstract profiles mapping for cloud specific templates

Compute Profiles

Storage Profiles



Different sizes for different application needs

- **micro**
  - 1 cpu, 512 mb ram
- **small**
  - 1 cpu, 2gb ram
- **medium**
  - 2 cpu, 2 gb ram
- **large**
  - 4 cpu, 4 gb ram
- **x-large**
  - 8 cpu, 16 gb ram

Different OS for different application needs

- **Windows 12** - Image Templates
- **Windows 16** - Image Templates
- **Redhat 9** - Image Templates
- **Redhat 10** - Image Templates
- **Ubuntu 12.04** - Image Templates
- **Ubuntu 14.04** - Image Templates
- **CentOS 6.7** - Image Templates
- **CentOS 7** - Image Templates

Different storage for different performance

- High performance storage
- Standard storage
- Low cost, large storage

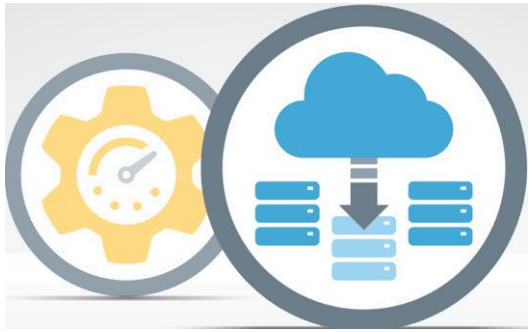
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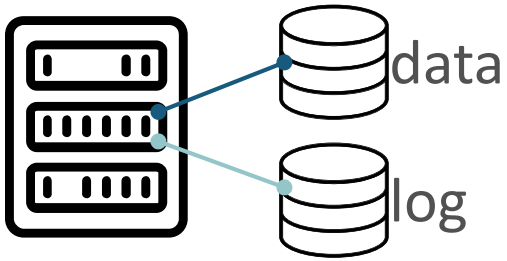
Agnostic Scripts

Agnostic Scripts	Decouple workload hardening and action scripts. It is workload specific.

Scripts are used for preparing the Operating System to enterprise specification



OS customization



Storage Mounts

CHEF puppet ANSIBLE

Agents and core service deployment

Workload hardening scripting is OS specific not Cloud specific

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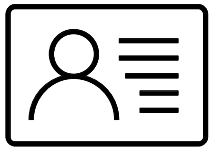
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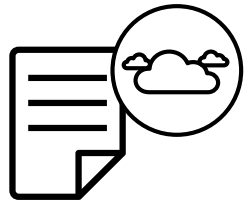
Agnostic Policies

Agnostic Policies | Decouple workload governing policies

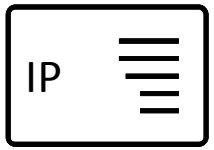
Like scripts, policies also play a crucial role in preparing and maintaining workloads.


Approvals


Naming


Placements


Automation overrides



IP address management

Keeping policies agnostic to cloud provider helps enterprise governance standardization.

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Agnostic Workload Authentication Keys / User-Pass

Agnostic workload Authentication Keys / User-Pass	Decouple Authentication. It is workload specific not cloud specific

Keys are specific to users and workloads



SSH Keys



Passwords

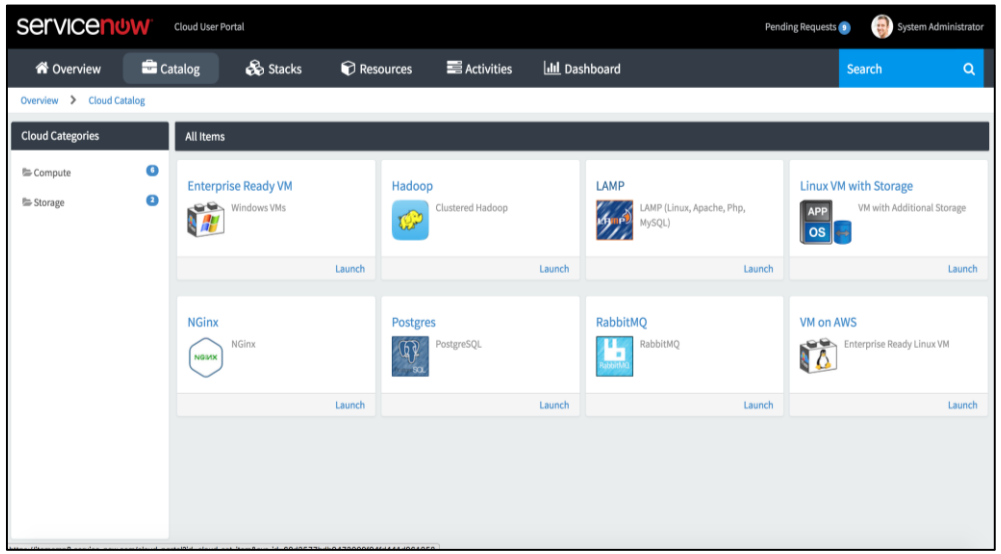
Keeping keys agnostic to cloud provider helps in standardizing user onboarding / off boarding

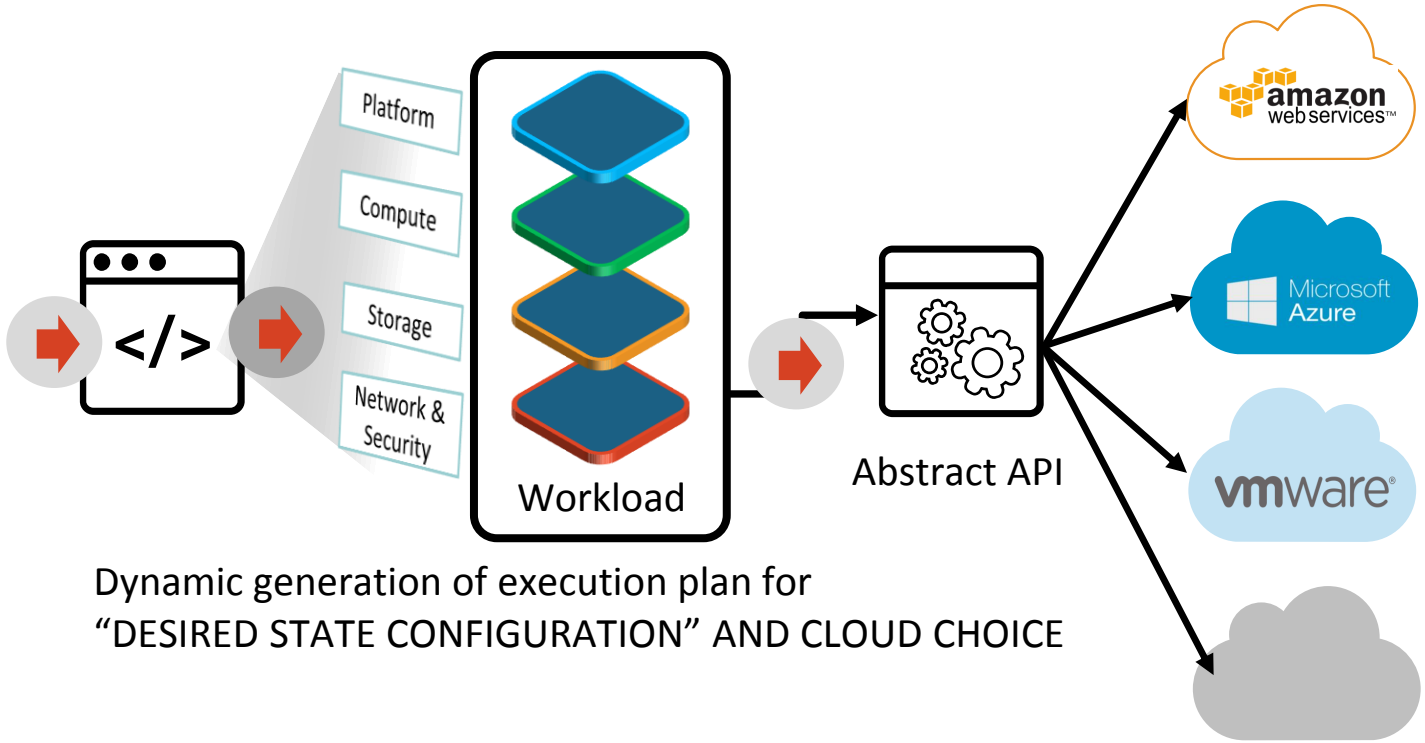
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Unified Cloud Service Definition

Unified Cloud Service Definition | Provider independent cloud service definitions

Provider independent service definition





Dynamic generation of execution plan for
"DESIRED STATE CONFIGURATION" AND CLOUD CHOICE

Keeping unified interface to cloud request allows enterprise to put controls easily

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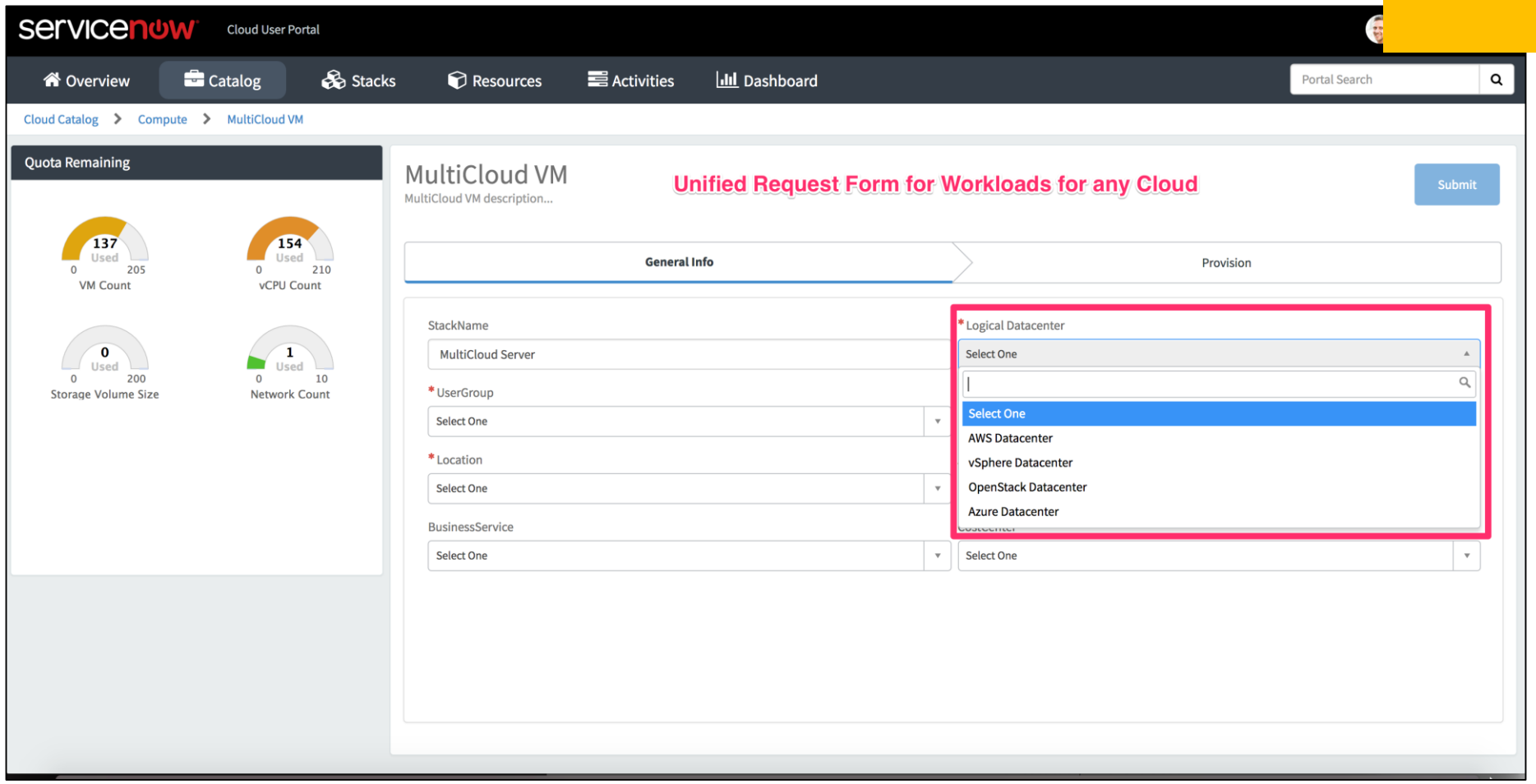
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Unified Interface

Unified Interface for Request and Service Management

Guided Provision, Resource Lifecycle & Service

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Summary - 10 Point formula for Cloud Portability

A	1	Unified Interface for Request and Service Ma	Unified	rce Lifecycle & Service Management
	2	Unified Cloud Service Definition		oud service definitions
B	3	Agnostic workload Authentication Keys / Us	Agnostic	n. It is workload specific not cloud specific
	4	Agnostic Policies		erning policies from cloud provider
	5	Agnostic Scripts		dening and action scripts. It is workload specific.
C	6	Abstract Resource Profiles	Abstracted	t profiles mapping for cloud specific templates
	7	Abstract Resource Pools		rs for cloud resources
	8	Abstract Resource Model		dels to represent cloud resources
	9	Abstract Cloud API		n provider specific driver implementations
	10	Abstract Cloud Datacenters		loud datacenter capabilities

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Top Takeaways

1

Avoid vendor-specific features in workloads to make it portable across cloud providers

2

- Unified
- Agnostic
- Abstracted

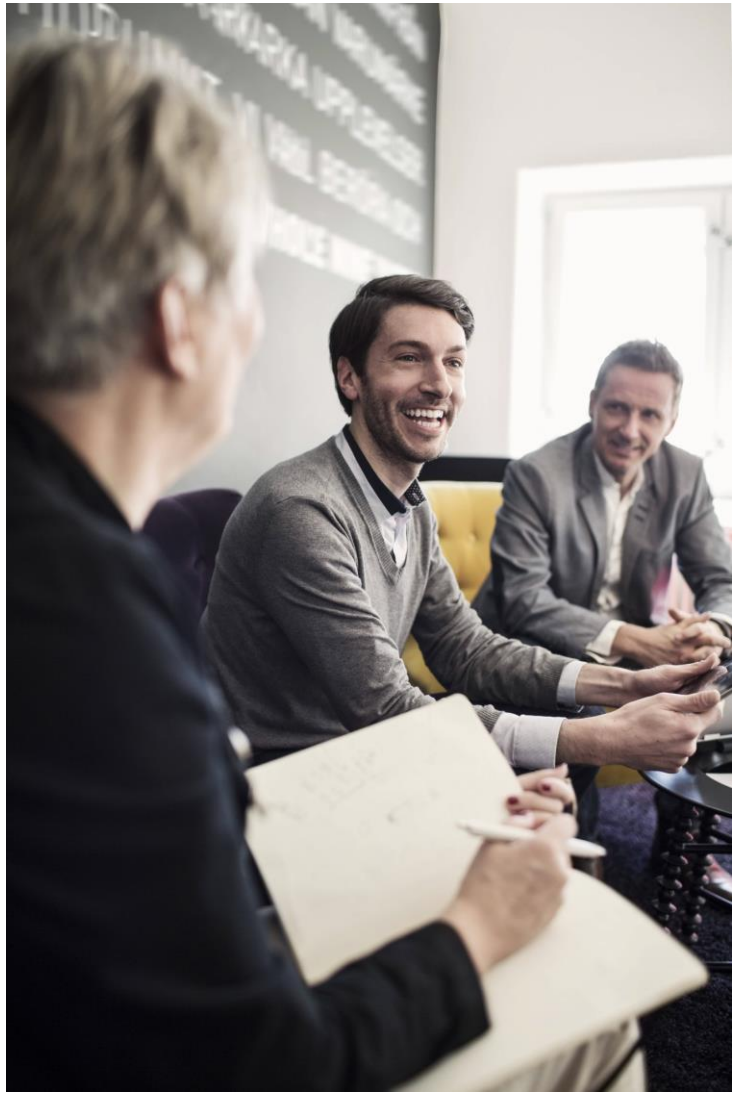
3

- Unified Service Catalog & CMDB
- Agnostic governance model
- Abstract orchestration framework

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Next Steps

- Visit us in the Pavilion for a live demo today!
- Register for Cloud Management Labs
  - LAB131988 - Zero to Cloud in an hour with ServiceNow CloudManagement
  - LAB131991 - Cloud Operating Model: Do it your way
  - LAB131989 - Designing Cloud agnostic workloads
  - LAB131990 - Extend your CMP : Build a new connector to a cloudprovider
- For early access, please email your presenter
  - Giri.Padmanabh@ServiceNow.con
- As an attendee of this session you will be receiving an invitation to our upcoming June 8, 2017 and June 15, 2017 Webinars



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Thank You

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Q & A

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