

A low-angle photograph of a modern, multi-story building with a grid-like facade of concrete and glass, set against a clear blue sky. The building's architecture features prominent horizontal and vertical lines, creating a sense of depth and structure.

SFU

SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

Automation and Orchestration: The key to delivering agile infrastructure and application services

Jean Soares – IT Infrastructure Services - Simon Fraser University

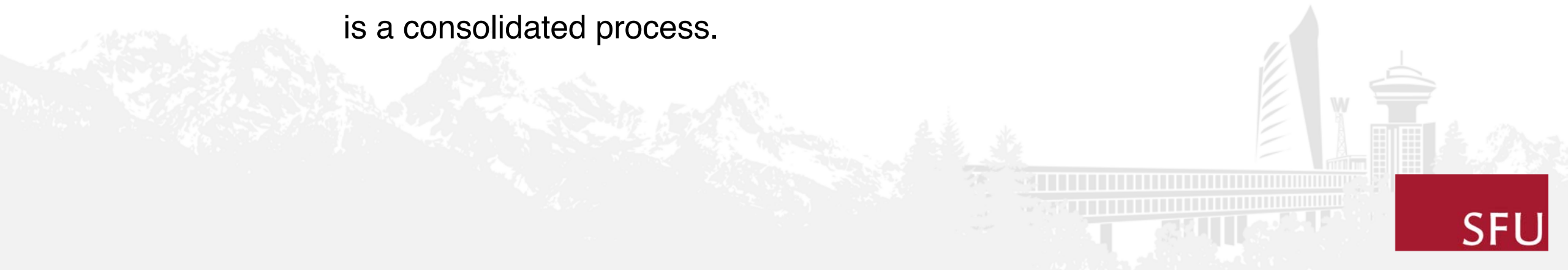
Agenda

- Introduction
- Platform
- Tasks & Events
- Teams & Tickets
- Server Provisioning & Automation
- Service Catalog
- Lessons Learned
- Q&A



Introduction

- Automation
 - The delivery of a task or a function without human intervention.
- Orchestration
 - The coordination of automated tasks in such a way that the end result is a consolidated process.



Platform

- Automation
 - VMWare vRealize Automation
- Orchestration
 - VMWare vRealize Orchestrator
- Configuration Management Tools
 - Puppet
 - Ansible
 - PowerShell

Tasks & Events

Provisioning Tasks

- Preconfigured
 - Limited Scalability
- Dynamic
 - Greater flexibility
- Manual to Automated processes
 - Scripting
 - Actions
 - Workflows

Lifecycle Events

- Requested
 - Customization of Attributes
- Building
 - Validation and Sanity checks
- Provisioned
 - Join Directory Services, update DNS
- Disposing
 - Clean up

Teams & Tickets

- Application Services
 - Requirements and Specs
- Network Services
 - IP & DNS
 - Firewall
 - Alias
- Servers & Storage
 - OS
 - Active Directory
 - Monitoring Systems
 - Load Balancing
 - Mail lists & Communication



Server Provisioning &

- Portal
 - Multi-tenancy
 - Self-provisioning
 - Governance
 - Access to console
- Orchestration
 - Integration with various vendor plugins
 - Integration with SOAP
 - Code based blueprints
 - OOTB workflows for management and maintenance.




Service Catalog

[Catalog](#) [Deployments](#) [Design](#) [Inbox](#) [Administration](#) [Infrastructure](#) [Containers](#) [Business Management](#)

Catalog 12 items

On behalf of:

Sort: [Name \(ascending\)](#)




Linux Custom Request - Prod

Requests a catalog item using the default template for each OS.

Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST




RedHat 7 - CI - BCC - PRD

RedHat 7 Server. SFU Custom Request.

Business group BCC

Service BCC Services

REQUEST




RedHat 7 - CI - NS - PRD - SRY

RedHat 7 Server. For Surrey Production. Requires manual entries.

Business group NS

Service NS Services

REQUEST




RedHat 7 - CI - SS - PRD - SRY

RedHat 7 Server. For Surrey Production. Requires manual entries.

Business group SS

Service S&S Services

REQUEST




SFU Create Alias Record

Creates a cname record for an existing A record entry.

Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST




SFU Create VIP DNS Entry

Requests the next available IP address from a given range.

Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST




SFU Firewall Change Request

Firewall Change Request.

Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST




SFU Load Balancing Request

Collects the required attributes to build a load balanced solution, including the

Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST




SFU Remove Alias Record

Removes a CNAME record from DNS.

Business group SS

Service S&S Services

REQUEST




Windows 2012 - CI - BCC - PRD

Windows 2012 Server. SFU Custom Request.

Business group BCC

Service BCC Services

REQUEST




Windows 2016 - CI - BCC - PRD

Windows 2016 Server. SFU Custom Request.

Business group BCC

Service BCC Services

REQUEST



Windows Custom Request - Prod

Requests a catalog item using the default template for each OS.






Business group ARM, [42 more](#)

Service SFU Server Provisioning

REQUEST

SFU

Deployments

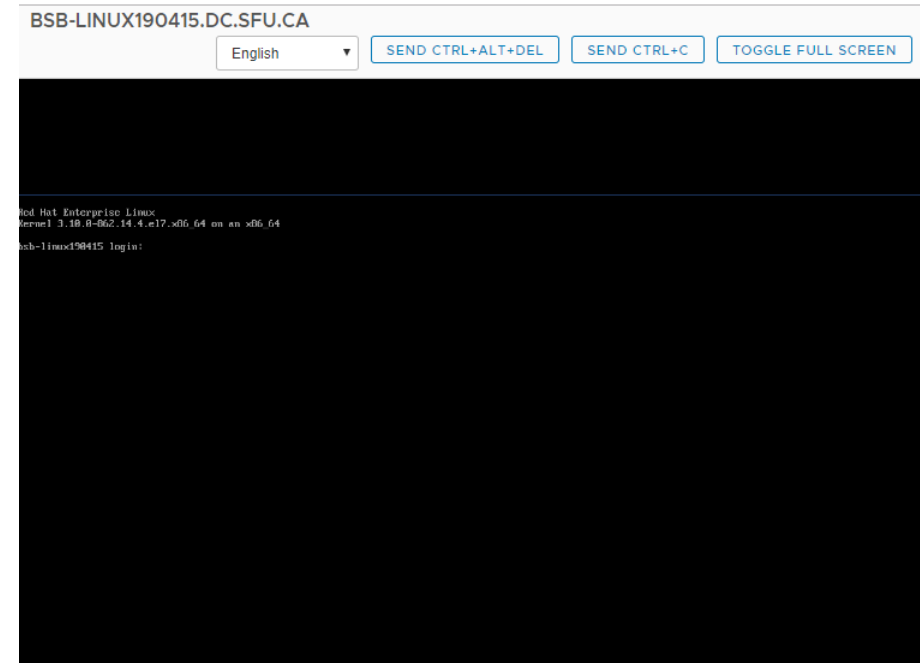
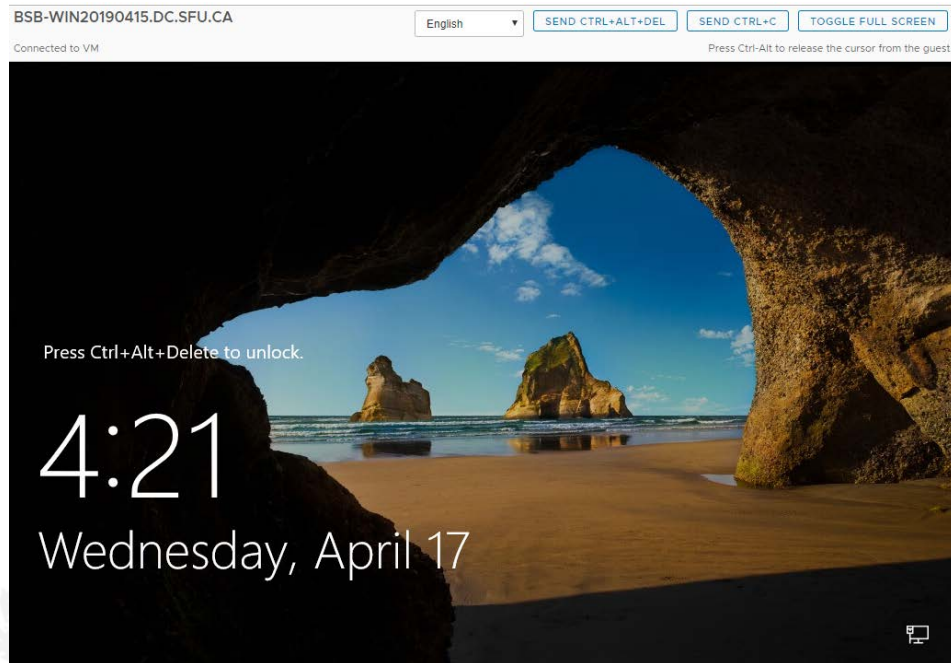
Deployments 397 items						
Search for deployments by name, description, IP address, resource name or machine status					Sort: Created Date (descending)	
	RedHat 7 - CI - VPR - PR... SFU Custom request form Owner Benjamin Reid Business group VPR	1 Resource VPR-DB1.DC...	Expense (Mo... ► On	Created 1 da... 142.58.232.143	Never expires	ACTIONS ▾
	Linux Custom Request - ... Requests a catalog item using the de... Owner Benjamin Reid Business group VPR	#5637 - Workflow Execution Linux Custom Reque... - Successful 100% The request was successfully completed				ACTIONS ▾ 1 day since submitted
	RedHat 7 - CI - BSB - PR... SFU Custom request form Owner Kennedy Ko Business group BSB	1 Resource BSB-LINUX1...	Expense (Mo... ► On	Created 1 da... 142.58.232.142	Never expires	ACTIONS ▾
	Windows 2016 - CI - BSB... SFU Custom request form Owner Kennedy Ko Business group BSB	1 Resource BSB-WIN201...	Expense (Mo... ► On	Created 1 da... 142.58.232.137	Never expires	ACTIONS ▾
	RedHat 7 - CI - SS - PRD... SFU Custom request form Owner Hon Man Wong Business group SS	1 Resource WELCOMES...	Expense (Mo... ► On	Created 2 d... 10.28.3.116	Never expires	ACTIONS ▾

VM Details

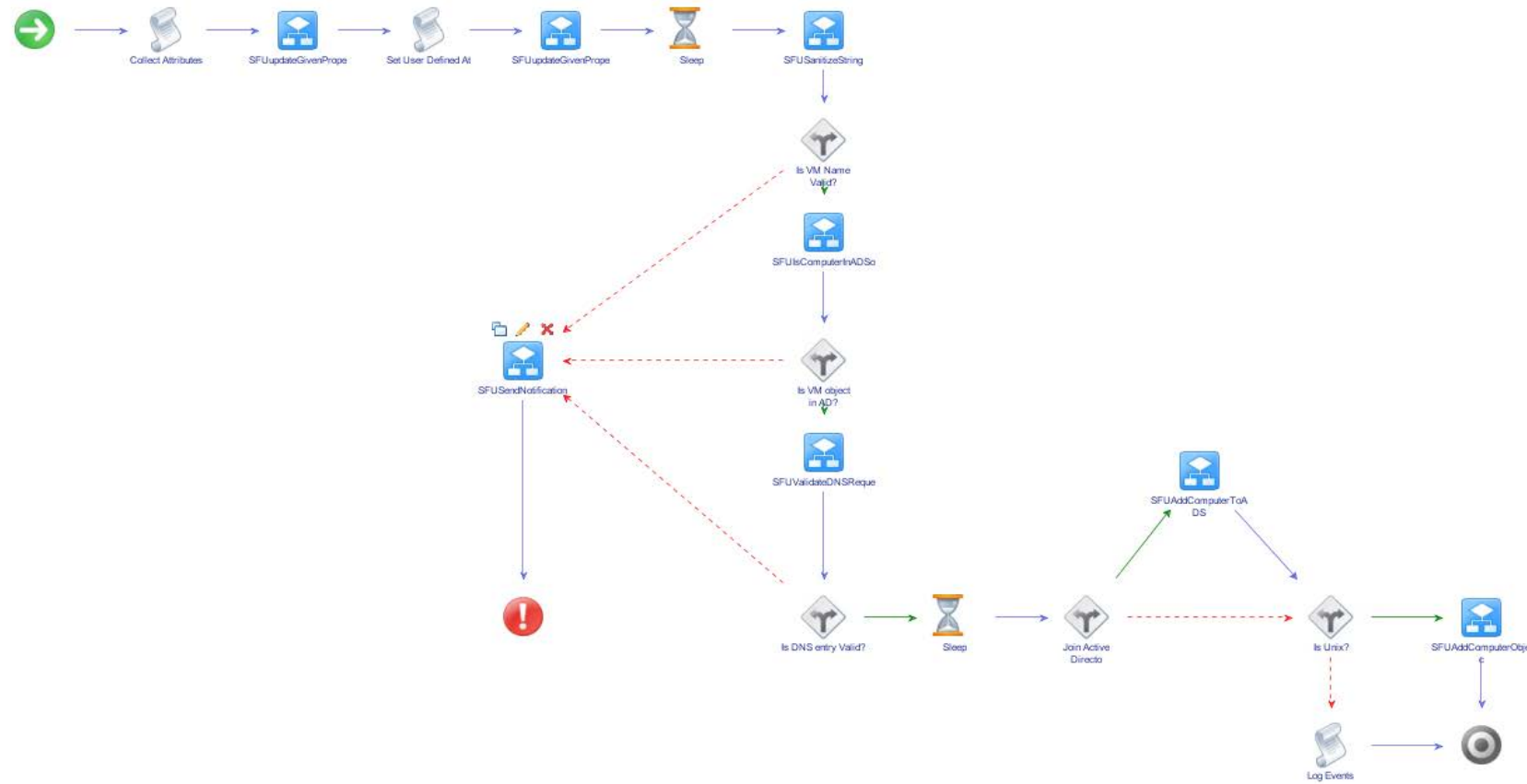
The screenshot shows the VMware vSphere interface for a virtual machine named 'VPR-DB1'. The left sidebar displays a list of actions for the VM, including 'Change Lease', 'Connect to Remote Console', 'Connect using VMRC', 'Create Snapshot', 'Destroy', 'Expire', 'Install Tools', 'Power Cycle', 'Power Off', 'Reboot', 'Reconfigure', 'Reprovision', 'Shutdown', 'Suspend', and 'Unregister'. The main panel shows the 'General' tab with the following details:

- Name: VPR-DB1
- Component: RedHat7ci509
- Status: On
- CPUs: 1
- Memory (MB): 2048
- Storage (GB): 30
- Description: RedHat7
- Owner:
- Blueprint: RedHat 7 - CI - VPR - PRD
- Compute resource: compute-bby
- Business group: VPR

Console Access



Workflows



Lessons Learned

- POC and its benefits
 - Proof of concept helps deliver the pros/cons for the proposed implementation
 - POC results in the ability to get executive support
- Executive support goes a long way to break silos.
 - Use the POC to get your executive team excited about the new technologies
- Collect requirements from the server Provisioning team.
 - Start by finding which of the low hanging fruit items can make the biggest impact on the team's day-to-day life.
- 80/20 rule for automation
 - There is always a percentage of special cases, leave those for last.

Q&A

