

Support Technical Exchange: Cloud Ask the Experts Sessions

- Cloud L2 SMEs – SmartCloud Provisioning – Sandy Weiss weiss@us.ibm.com



What is SmartCloud Provisioning?

Software which manages resources in a cloud computing environment.

SCP 2.1 FP1 is scheduled to GA next month
provides zVM as a new cloud group

Comprised of four “components”

HSLT - High Scale Low Touch, the default cloud group

SCP core – component in charge of managing hypervisors and hypervisor managers; pattern creation/deployment

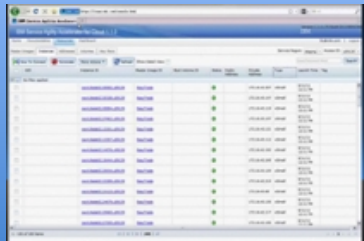
VIL - Virtual Image Library

ICCT - Image Construction and Composition Tool

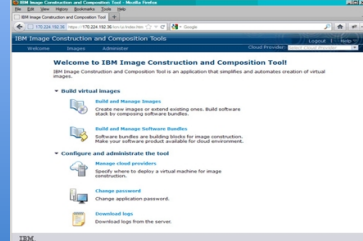
Core capabilities of SmartCloud Provisioning (and its components)

SmartCloud Provisioning

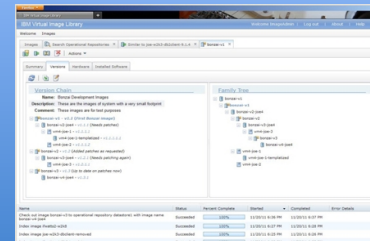
High Scale Low Touch



ICON – Image Construction



Virtual Image Library



SCP core

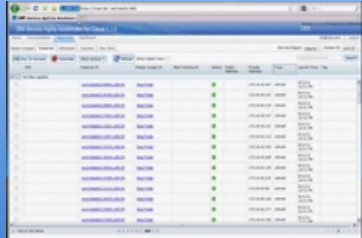


- **Distributed architecture** for solution resilience.
- **Rapid scalable deployment** designed to deliver near-instant deployment of 100s of virtual machines in seconds instead of mins or hours.
- **Continuous operations** during upgrades and maintenance resulting in no outages or downtime.
- **Reliable, non-stop cloud** capable of automatically tolerating and recovering from software and hardware failures.
- **Save IT labor resources at scale** by enabling self-service request and highly automated operations
- **Hypervisor & hardware agnostic** enabling choice and avoiding vendor lock-in.
- **Open source**, commodity skills, small footprint.

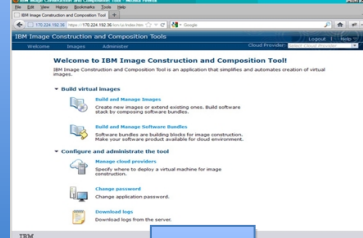
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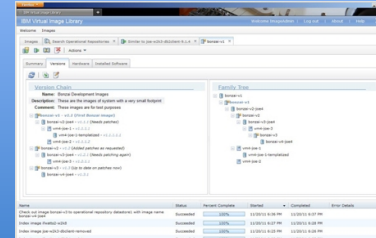
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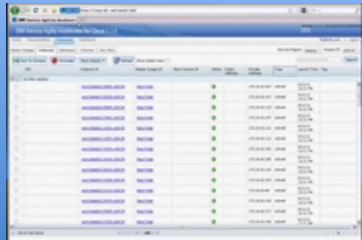


- Advanced **Image lifecycle** management & **image composition** tooling.
- Tooling to simplify **migration of workloads** between hypervisors.
- **Hypervisor agnostic** supporting image composition on different platforms.
- Image publishing and **image repository**.
- **Run-time image activation** allowing advanced customization from standardized templates.
- **SmartCloud Enterprise** enabled, supporting integration with IBM's public cloud.

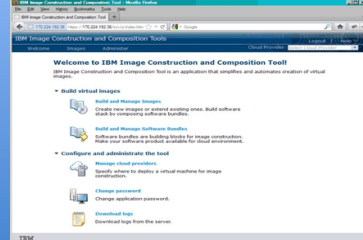
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SmartCloud Provisioning

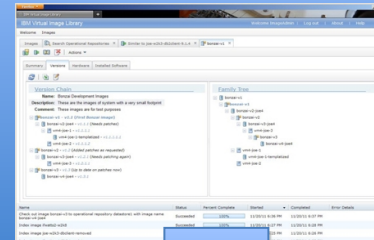
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Virtual Image Library



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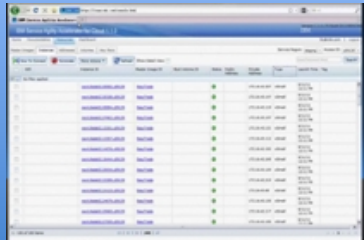


- **Discovery of images** across the virtual infrastructure.
- **Automatic indexing** / cataloging of images.
- Image **comparison tooling** to identify changes, and manage change.
- Image **version control** to help standardise images.
- **Supports a wide range** of image and OS types.
- **Portability checks** and **remediation** to help create cross hypervisor images

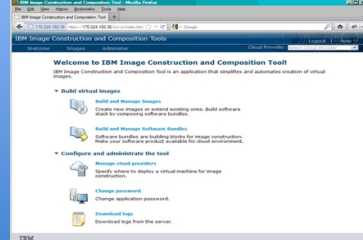
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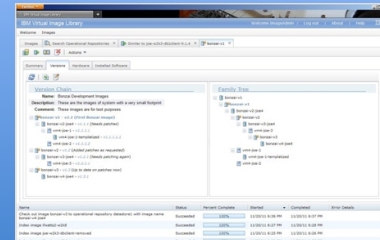
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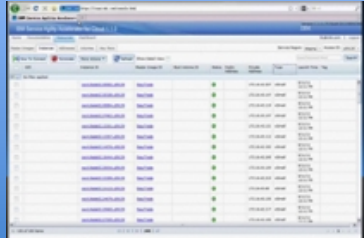


- PaaS pattern deployment.
- GUI based pattern creation.
- Deployment of IaaS & PaaS to advanced hypervisor managers (eg. VM control)
- Pre-canned images available (chargeable)

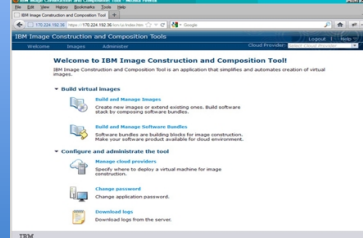
Extending the Cloud capabilities beyond SmartCloud Provisioning

SmartCloud Provisioning

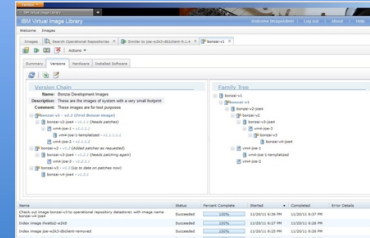
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SCP core



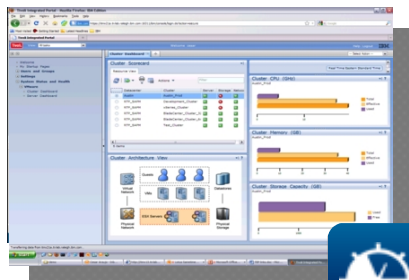
Health Analytics
Host & VM Monitoring
Event Response & Mgt
Capacity Planning
What-if Scenarios?

Patch Management
Compliance Reporting
Policy Enforcement

Centralised Backup
Policy Driven
Data Restore
Image Snapshots

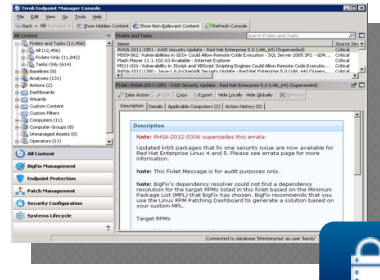
Usage Reporting
Cognos Reporting
Accounting & Rating
Invoice Creation

SmartCloud Monitoring



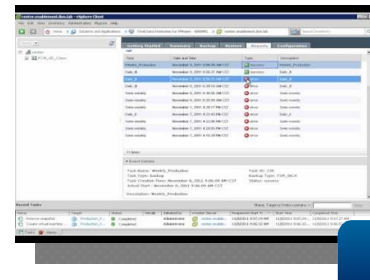
Availability and
Performance

Tivoli Endpoint Manager



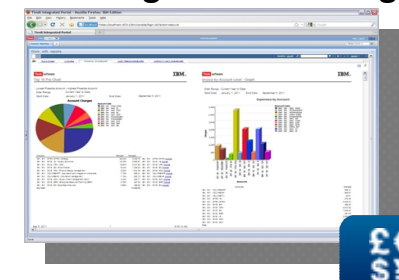
Security and
Compliance

Tivoli Storage Manager fVE



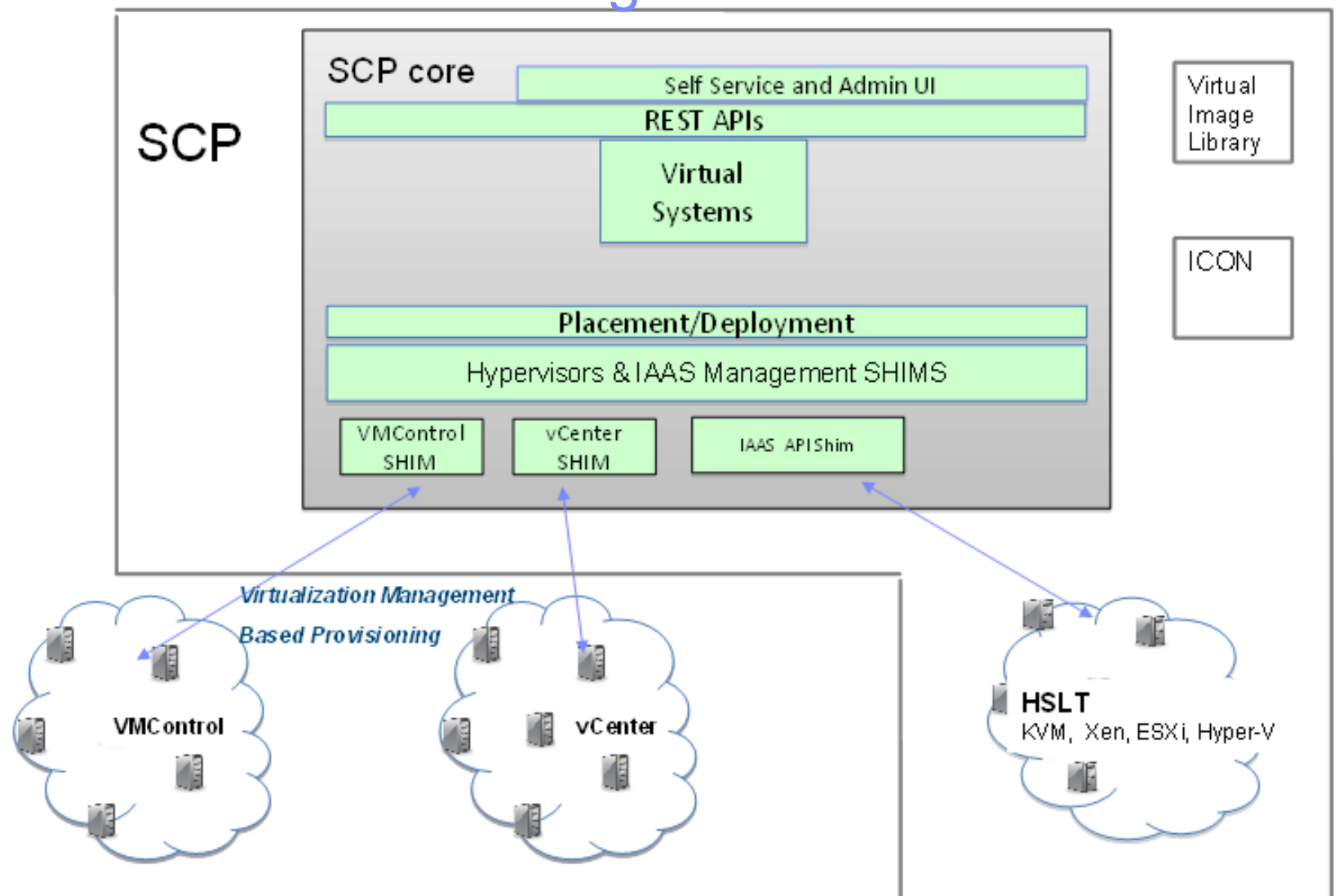
Security and
Compliance

Tivoli Usage & Accounting Mgr



Usage and
Accounting

SmartCloud Provisioning architecture



Some basic info:

- Cloud group:

- A cloud group represents a hypervisor or a hypervisor mgr
- A single instance of SCP can manage more than one cloud group

- IP Group:

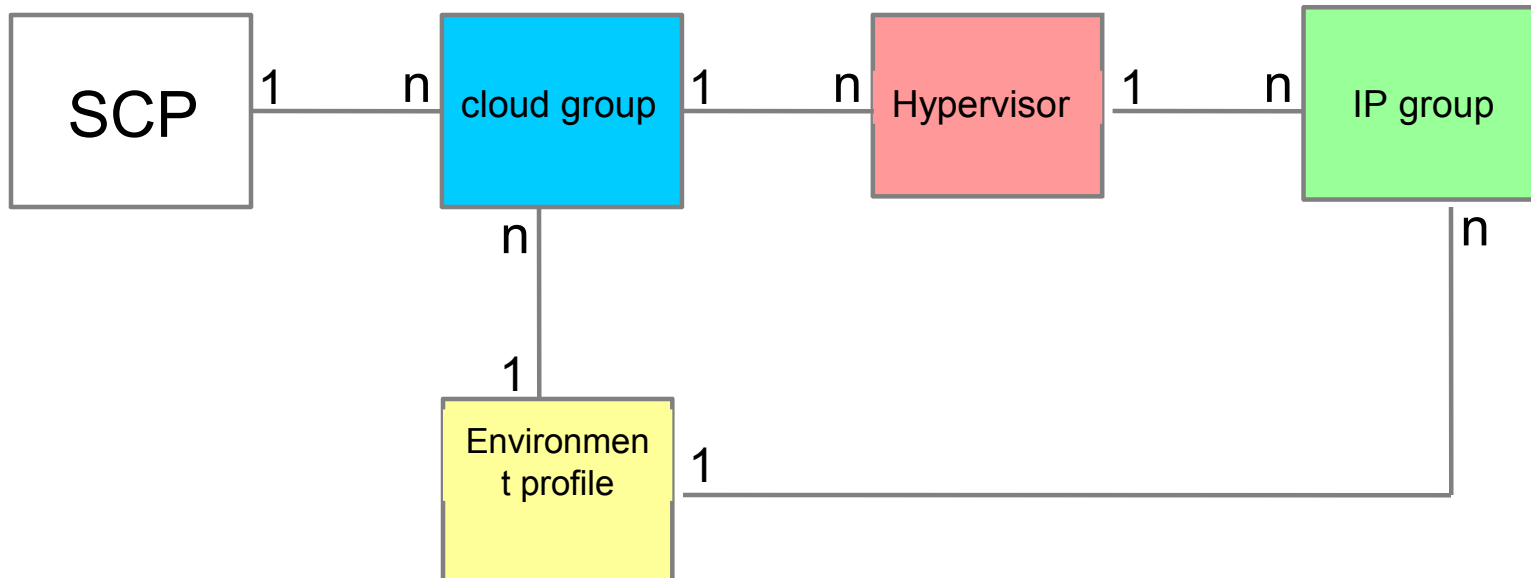
- An IP group represents a network configuration:
 - A specific VLAN (already existing in the hypervisor/hypervisor manager)
 - A range of IP addresses
 - Subnet mask
 - DNS
 - Gateway
 - static/dhcp
 - IPv4/IPv6
 - More than one IP group can be associated to a hypervisor

Some basic info:

- Environment profiles:
 - segment a cloud group into operational environments (e.g test vs dev)
 - segment a cloud group per groups or users
 - segment IP groups in the cloud group
 - define limitations on the number of virtual processors, virtual memory and storage

Cloud groups, hypervisors, IP groups, environment profiles:

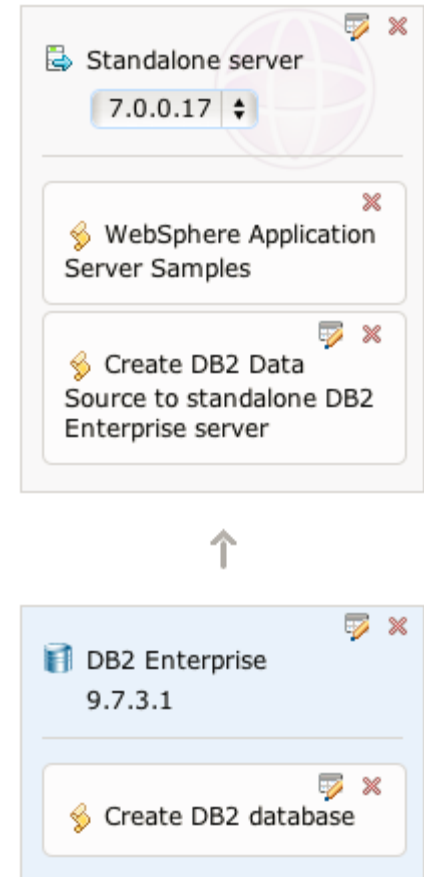
how do they fit together



Some basic info:

- Patterns:
 - Deploy more than one VM in one shot
 - The VMs can be deployed with no interconnection
 - The VMs can be deployed assuming after boot they will be connected
 - Add-ons and package scripts can be used to customize images

They can be used not only for IBM software



Some basic info:

- Add-ons
 - are used to configure disks, NICs and users in the patterns
 - run BEFORE script packages
 - Cannot be ordered in a pattern
 - Run ONLY at VM creation time
- Script packages
 - Are used to modify the behavior of parts in the pattern
 - Can be ordered
 - Can be used to install applications
 - Can run at VM creation, deletion time or when the user decides
 - Activation engine is needed

Some basic info:

- Three image types supported:
 - Basic: no configuration at boot time
 - Intermediate:
 - can run scripts at boot time
 - a set of scripts (add-ons) provided out of the box:
 - Add a disk
 - Add a disk and mount a fs
 - Create a user
 - Add a network interface
 - Advanced:
 - can run scripts at boot time and be part of complex patterns (integration of different softwares running on different VMs)
 - Need the activation engine (images extended with ICCT)

NOTE:

- Image library automatically discover capabilities
- If you do not use virtual image library for registering images, you can always use SCP UI to modify capabilities

Some basic info:

- Supported image formats
 - HSLT
 - KVM: raw
 - Xen: raw (pull the kernel and optionally initrd)
 - Hyper-v: VHD
 - ESXi : raw (vmdk)
 - VMWare/vCenter
 - Templates
 - ova
 - zVM
 - ova
 - PowerVM/Systems Director VMControl
 - mksysb
 - raw

Links

- SCP 2.1 Documentation

- http://pic.dhe.ibm.com/infocenter/tivihelp/v48r1/index.jsp?topic=%2Fcom.ibm.scp.doc_2.1.0%2Fwelcome.html

- SCP Support Page

- http://www-947.ibm.com/support/entry/portal/overview/software/tivoli/ibm_smartcloud_provisioning

- Must Gather (under construction)

- <http://www.ibm.com/support/docview.wss?uid=swg27035454>