

IBM Flex System Manager

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Agenda

- Flex Systems Manager Overview
- NextGen UI
- System and Chassis Provisioning
- Lifecycle Management and Monitoring
- Questions

FSM OVERVIEW

Flex System Manager (FSM) is the platform management backbone of the PureFlex systems

- Provides the building block for virtualization and integrated services management
- Single-point-of-entry for management across server, storage and networks
- Allows management across IBM's PureFlex heterogeneous server, storage and network resources
- Improves IT efficiency by providing easier compute configuration, for better service and time to market
- All delivered as an appliance built into the platform
- Required for Power compute nodes

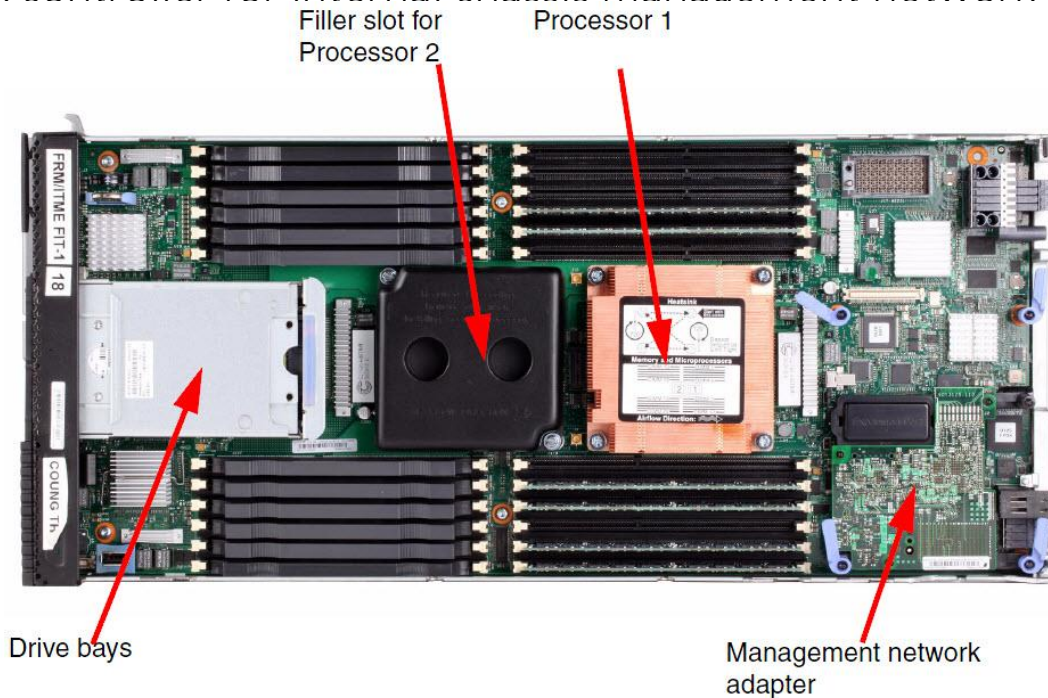
FSM -Major Features per Edition

Product/Feature	IBM x86 and Power Systems	
	Base/Chassis	Advanced Upgrade/Chassis
IBM FSM Base Level		Included
IBM Service & Support Manager		
IBM Fabric Manager		
IBM Storage Control		
IBM Network Control		
IBM VMControl Express Edition		
(VM Life Cycle Management)	(For VMware, KVM, Hyper-V, PowerVM)	
IBM Flex Systems Manager Advanced Function		
VMControl Standard Edition (Image Management)		(KVM and PowerVM only)
VMControl Enterprise Edition		
(System Pools)		(KVM and PowerVM only)

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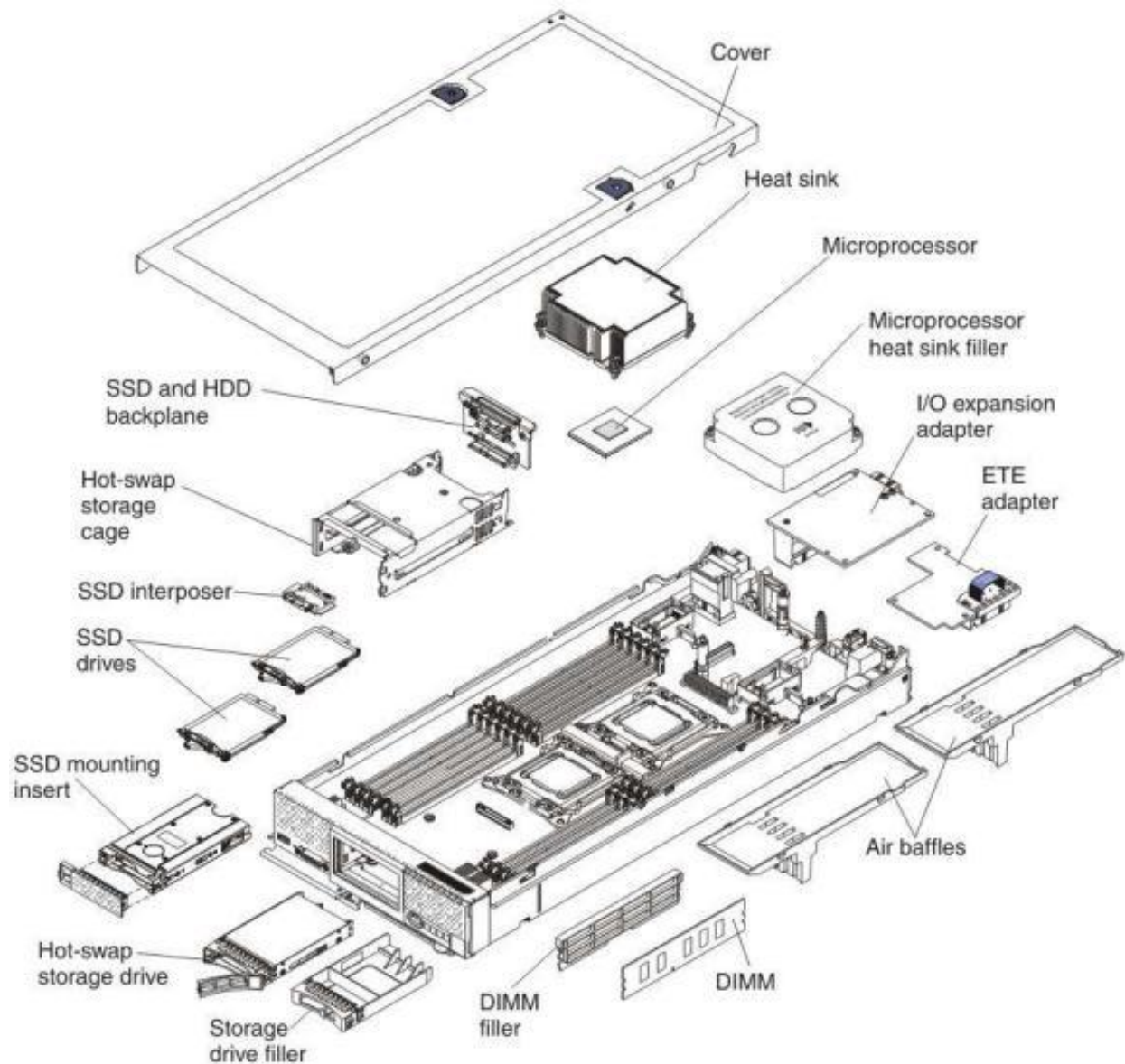
Hardware Overview – Hardware Specifications

- One Intel Xeon Processor E5-2650 8C 2.0 GHz 20 MB Cache 1600 MHz 95 W
- 32 GB of memory with eight 4 GB (1x4 GB, 1Rx4, 1.35 V) PC3L-10600 CL9 ECC DDR3 1333 MHz LP RDIMMs
- Integrated LSI SAS2004 RAID controller
- Two IBM 200 GB SATA 1.8" MLC SSD configured in a RAID 1
- One IBM 1 TB 7.2 K 6 Gbps NL SATA 2.5" SFF HS HDD
- Dual-port 10 Gb Ethernet Emulex BladeEngine 3 (BE3) network controller for data network connections
- Dual-port Broadcom 5718 network controller for internal chassis management network connections
- Integrated Management Module I

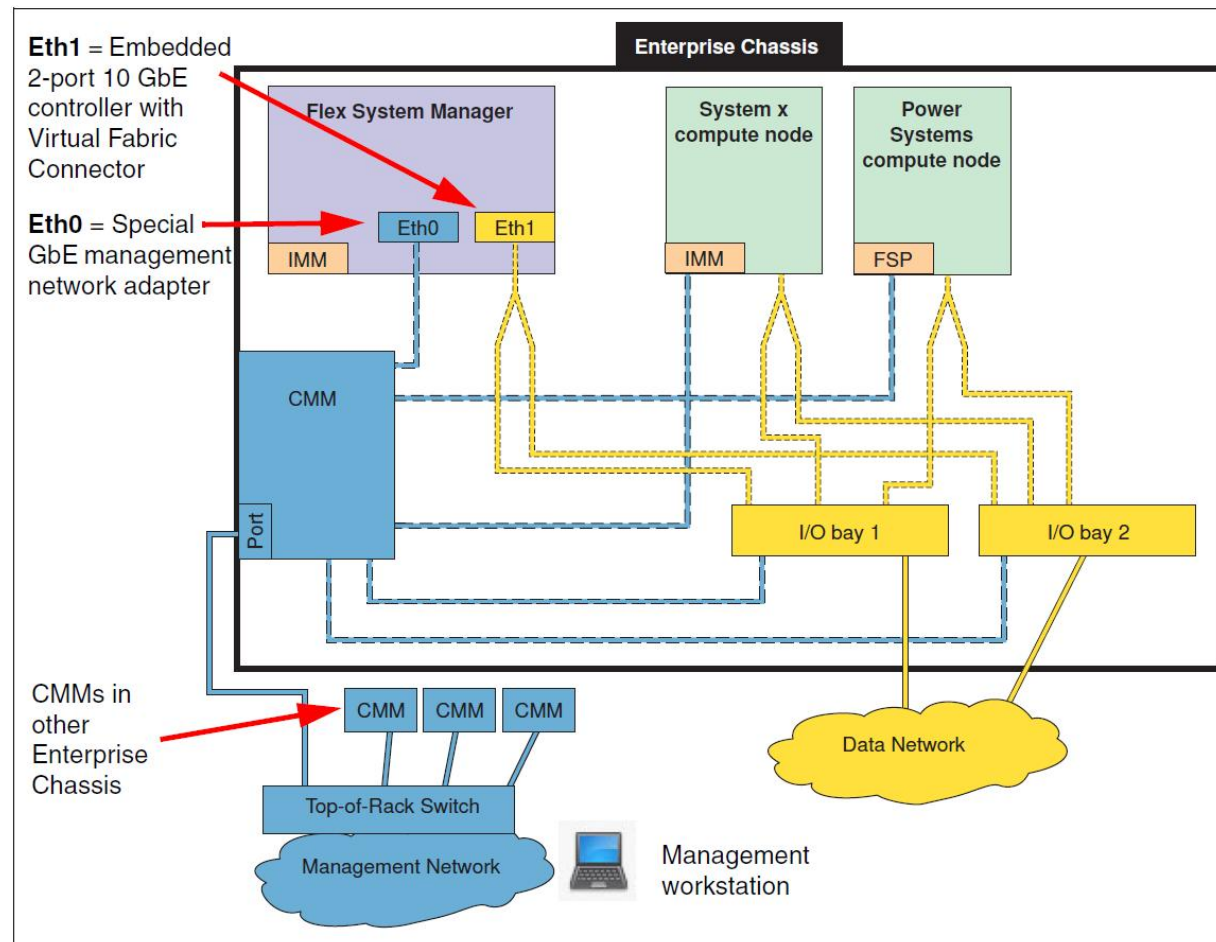


FSM Hardware

- Customized x86 compute node
- Locked down firmware, do NOT attempt to use x240 firmware stack.
- FSM has a special Everything-to-Everything (ETE) adapter that allows it to communicate across the chassis internal network for chassis element discovery, configuration and monitoring.
- The FSM is delivered pre-configured from the factory for optimal performance of FSM software stack



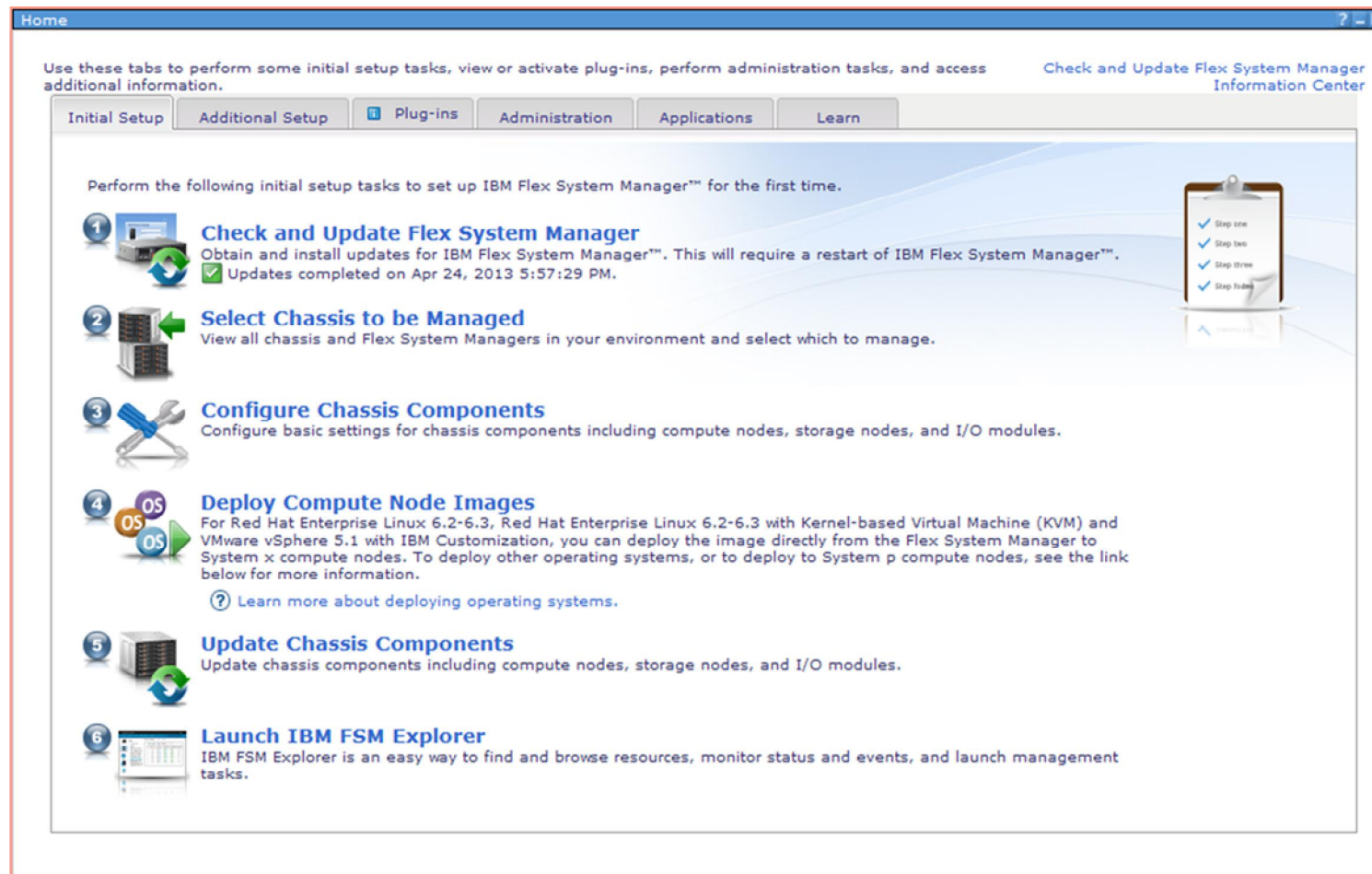
FSM Ethernet Device Routing



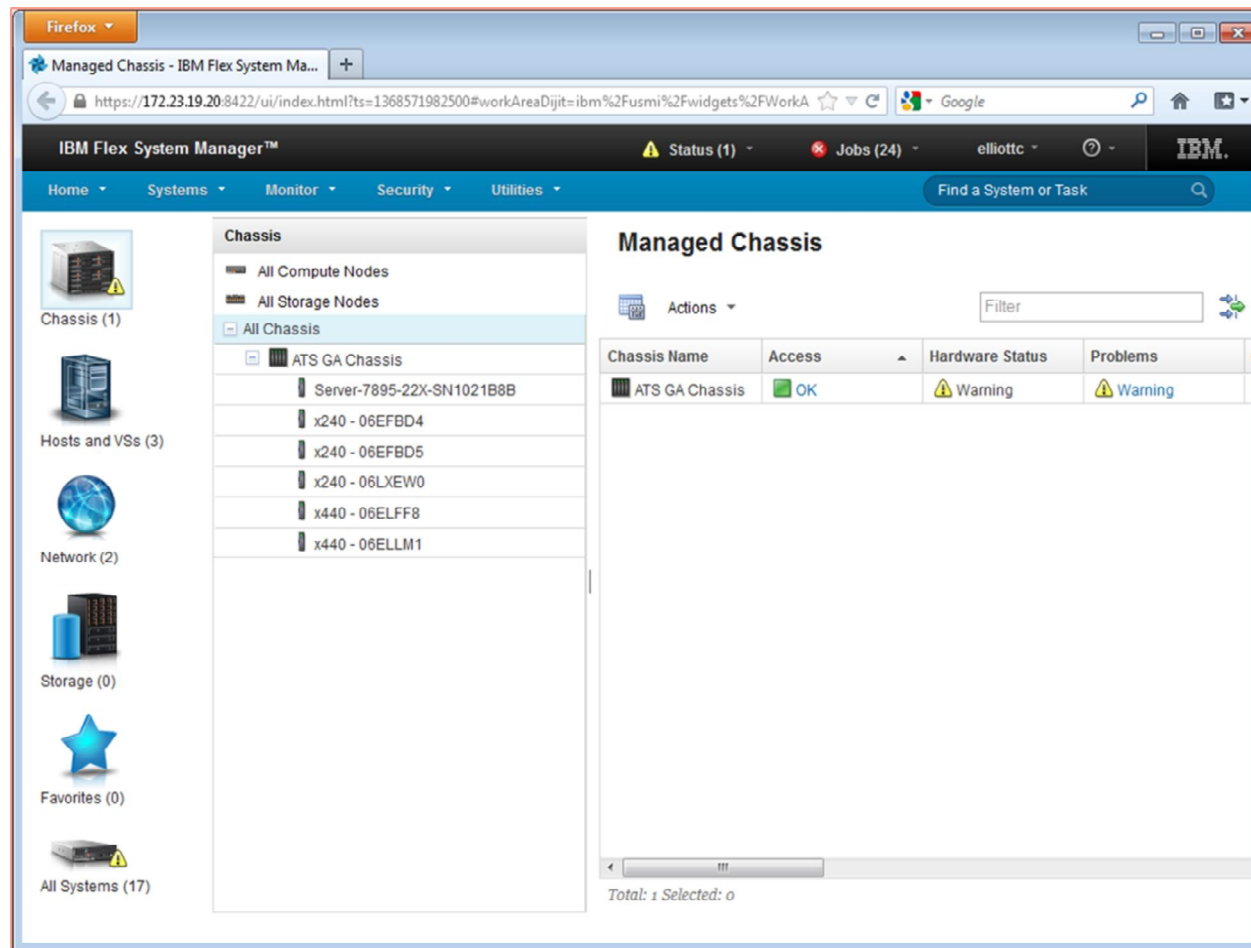
FSM – Application Pre-Installed (Quick Bring Up)

- The FSM comes pre-installed
- Upon first power on, the administrator is presented a very simple Configuration Wizard which allows for customization of the appliance for the customer environment
- The wizard allows customization for the following items:
 - Date & Time
 - Base User Account
 - IP Configuration
 - Hostname & Gateway
 - DNS
- Up within an hour

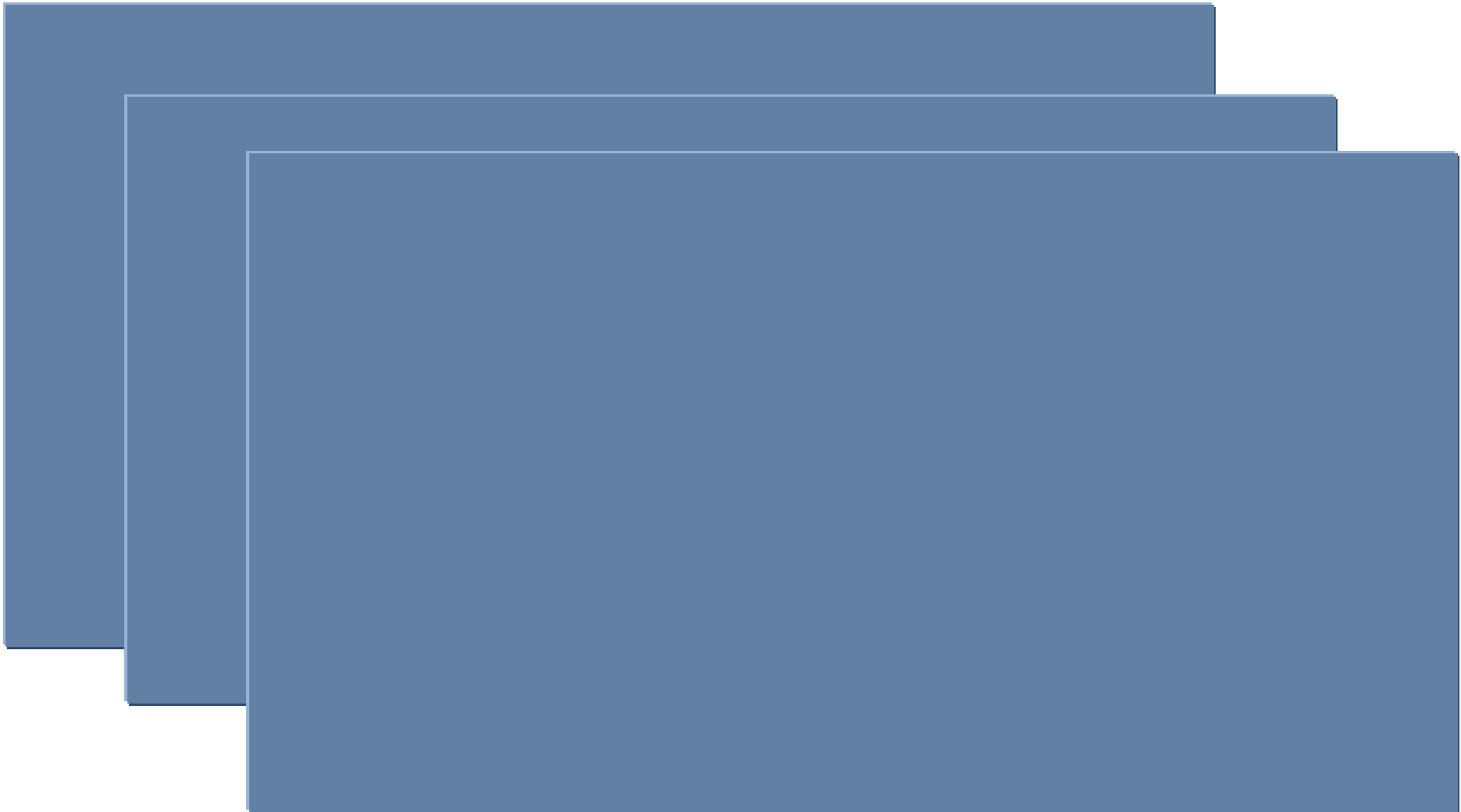
Initial Setup – FSM Landing Page



FSM Explorer (Next Gen UI)



Centralized Management (Centralized Security)



WELCOME TO THE NEXTGEN UI

FSM Explorer – NextGen UI

Quick Access Menu Bar

Global Search Box

Navigation Pane

Context-Sensitive Tree View

Graphical Overlays

Front Panel LEDs

Configuration Patterns

Actions Pane

IBM Flex System Manager™

Status (1) Jobs (24) elliotc

Find a System or Task

Home Systems Monitor Security Utilities

Chassis (1)

Hosts and VSs (3)

Network (2)

Storage (0)

Favorites (0)

All Systems (17)

Chassis

- All Compute Nodes
- All Storage Nodes
- All Chassis
- ATS GA Chassis
 - Server-7895-22X
 - x240 - 06EFBD4
 - x240 - 06EFBD5
 - x240 - 06LXEW0
 - x440 - 06ELFF8
 - x440 - 06ELLM1

Hardware Map

Table View

ATS GA Chassis - Summary

Problems: 1 (View All Status, View Event Log)

Verify Connection Interval: Every 15 minutes

IP Hosts: 172.23.18.20

IP Addresses: 172.23.18.20, 172.23.18.21, 172.23.18.22, 172.23.18.23, 172.23.18.24, 172.23.18.25, 172.23.18.26, 172.23.18.27, 172.23.18.28, 172.23.18.29, 172.23.18.30, 172.23.18.31, 172.23.18.32, 172.23.18.33, 172.23.18.34, 172.23.18.35, 172.23.18.36, 172.23.18.37, 172.23.18.38, 172.23.18.39, 172.23.18.40, 172.23.18.41, 172.23.18.42, 172.23.18.43, 172.23.18.44, 172.23.18.45, 172.23.18.46, 172.23.18.47, 172.23.18.48, 172.23.18.49, 172.23.18.50, 172.23.18.51, 172.23.18.52, 172.23.18.53, 172.23.18.54, 172.23.18.55, 172.23.18.56, 172.23.18.57, 172.23.18.58, 172.23.18.59, 172.23.18.60, 172.23.18.61, 172.23.18.62, 172.23.18.63, 172.23.18.64, 172.23.18.65, 172.23.18.66, 172.23.18.67, 172.23.18.68, 172.23.18.69, 172.23.18.70, 172.23.18.71, 172.23.18.72, 172.23.18.73, 172.23.18.74, 172.23.18.75, 172.23.18.76, 172.23.18.77, 172.23.18.78, 172.23.18.79, 172.23.18.80, 172.23.18.81, 172.23.18.82, 172.23.18.83, 172.23.18.84, 172.23.18.85, 172.23.18.86, 172.23.18.87, 172.23.18.88, 172.23.18.89, 172.23.18.90, 172.23.18.91, 172.23.18.92, 172.23.18.93, 172.23.18.94, 172.23.18.95, 172.23.18.96, 172.23.18.97, 172.23.18.98, 172.23.18.99

Common Actions

- Configuration Patterns
- Configuration Details
- Deploy Chassis Pattern
- Inventory
 - Collect Inventory
- Power On/Off
 - Restart CMM
- Release Management
 - Show and Install Updates...
- Remote Access
 - Remote Command Line
- Service and Support
 - Submit service request
- System Identification
 - LED Flash
 - LED Off

General Actions

FSM Explorer – NextGen UI (cont)

The screenshot displays the IBM Flex System Manager (FSM) Explorer NextGen UI. The interface includes a top navigation bar with tabs for Home, Systems, Monitor, Security, and Utilities. The Systems tab is active, showing a list of systems on the left and a detailed view of a selected system on the right. The detailed view for 'ATS GA Chassis - System Chassis' shows various status indicators and a list of resources. A red box highlights the 'Problem Systems (1)' section, indicating there are 1 unique resources with status entries. Another red box highlights the 'Details' menu, which is context-sensitive and appears upon a right-click. A third red box highlights the 'General Actions' menu, which is a general actions menu. Red text annotations are present: 'Menu Item for Categorized' points to the 'Details' menu; 'Hover over' points to the 'Health status' and 'Job status' indicators; 'Context-sensitive Right-mouse Click' points to the 'Details' menu; and 'General Actions Menu' points to the 'General Actions' dropdown.

IBM Flex System Manager™

Home Systems Monitor Security Utilities

Systems Configuration Firmware

All Groups All OSs Power Systems Management

Configuration Patterns Show Update

Chassis (1)

Discover Deploy Compute Node Images Deploy Virtual Appliance

Hosts and Networks

Network (2)

Storage (0)

Favorites (0)

All Systems (17)

There are (1) unique resources with status entries

Problem Systems (1) Non-Compliant Systems (0)

ATS GA Chassis - System Chassis

Showing 1 of 1 resources

All Problems All Resources with Problems

Details

Create Group

Deploy Compute Node Images

Remove...

Rename...

Add to

Automation

Inventory

Power On/Off

Release Management

Remote Access

Security

System Configuration

System Status and Health

Service and Support

Advanced Properties

Health status

Job status

Menu Item for Categorized

Context-sensitive Right-mouse Click

General Actions Menu

General Actions

Details Page for IT Elements

flex2-1.atsxlab.com: Fan

Actions

flex2-1.atsxlab.com

Critical

General

Properties

System Configuration

Configuration

System Status and Health

Active Status

Event Log

Related Resources

Chassis

Chassis Management Module

Cooling Domain

Fan

Installed Software

Modular Device

Power Domain

Power Supply

Server

Storage Enclosure

Switch

Name	State	Health State	Model	Manufacturer	Fan Operating Mode	Desired Speed	Description
Fan01				IBM			Fan
Fan02				IBM			Fan
Fan03				IBM			Fan
Fan05				IBM			Fan
Fan06				IBM			Fan
Fan07				IBM			Fan
Fan08				IBM			Fan
Fan10				IBM			Fan

Storwize V7000-4939-IntV7000-Cluster-IBM: Disk Drive

Actions

Storwize V7000-4939-IntV7000-Cluster-IBM

OK

General

Properties

System Status and Health

Active Status

Event Log

Related Resources

Disk Drive

Farm

Fibre Channel Port

IP Interface

Storage Enclosure

Storage Pool

Storage Volume

System Role

Name	Device Type	Capacity	Health State	Model	Manufacturer
disk0	SAS	299462819840		ST9300605SS	IBM
disk1	SAS	299462819840		ST9300605SS	IBM
disk2	SAS	299462819840		ST9300605SS	IBM
disk3	SAS	299462819840		ST9300605SS	IBM
disk4	SAS	499570966528		ST9500620SS	IBM
disk5	SAS	499570966528		ST9500620SS	IBM
disk6	SAS	299462819840		ST9300605SS	IBM
disk7	SAS	299462819840		ST9300605SS	IBM
mdisk0		1197851279360			
mdisk1		499570966528			

Configuration Patterns: Servers – Details

Actions

x240_DSY0123

OK

General

Properties

System Configuration

Configuration

System Status and Health

Active Status

Event Log

Related Resources

Card

Chassis

Ethernet Port

Fibre Channel Port

Installed Software

Management Controller

Memory

Physical Connector

Processor

Resource Pool

Service

Slot

System Chassis

Profile Status: No pattern assigned
Action: Deploy Server Pattern

Failover monitoring: Not Started

Server Pattern: Unassigned

Server Profile: Unassigned

Server: x240_DSY0123

Configuration

Server Settings:

Boot

Boot mode: UEFI First, Then Legacy

Normal boot order: Legacy Only=CD/DVD Rom=Floppy Disk=Hard Disk 0

Wake on LAN (WoL) boot order: PXE Network=CD/DVD Rom=Hard Disk 0

Firmware Settings

System Information

Management Interface

Power Schedule and Capping

Performance And Recovery

Devices And IO Ports

Extended IMM

Extended UEFI

Storage Node

flex2-s1.atsxlab.com: Switch Port

Actions

flex2-s1.atsxlab.com

Warning

General

Properties

System Status and Health

Active Status

Event Log

Related Resources

Installed Software

IP Interface

LAN Connection

Physical Package

Server - Connected To Switch

Server - Switch Connected To Service

Switch Port

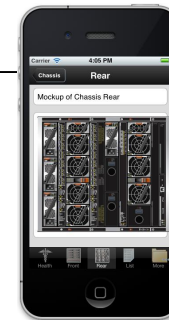
System Chassis

VLAN Connection

Name	Problems	State	Port Index	Physical Port Number	Aggregated	Aggregate
EXT1	OK	Active	171	43	false	
EXT10	OK	Not Available	180	52	false	
EXT11	OK	Not Available	181	53	false	
EXT12	OK	Not Available	182	54	false	
EXT13	OK	Active	183	55	false	
EXT14	OK	Not Available	184	56	false	
EXT15	OK	Not Available	185	57	false	
EXT16	OK	Not Available	186	58	false	
EXT17	OK	Not Available	187	59	false	
EXT18	OK	Not Available	188	60	false	
EXT19	OK	Not Available	189	61	false	
EXT2	OK	Not Available	172	44	false	
EXT20	OK	Not Available	190	62	false	
EXT21	OK	Not Available	191	63	false	
EXT22	OK	Not Available	192	64	false	
EXT3	OK	Not Available	173	45	false	
EXT4	OK	Not Available	174	46	false	
EXT5	OK	Not Available	175	47	false	

Ethernet Switch Module

Flex System Mobile Management



Apple iOS



RIM BlackBerry



Google Android

- Manage from Anywhere
 - Enables a robust experience on the most popular mobile platforms
- Simplification
 - Quick and easy access to relevant information
 - Check Health and Status of IT Resources
- Focus on Top Customer Pain Points on mobile
 - Swipe, touch interface minimizing keyboard entry
 - Secure and protect personal data

Features in v1.0

- Ø Health and Status: Monitor Health Problems, Check Resources Status
- Ø Event Log: Event History for Chassis, compute nodes, and IO Modules
- Ø Chassis Map (Hardware View): Front and Rear for Single Chassis
- Ø Chassis List (Components View): List of compute nodes, IO/Cooling/Power Modules
- Ø Inventory Management: VPD Information (serial, type, model, ip)
- Ø Multi Chassis Management: Manage multiple Flex System Chassis with a single connection

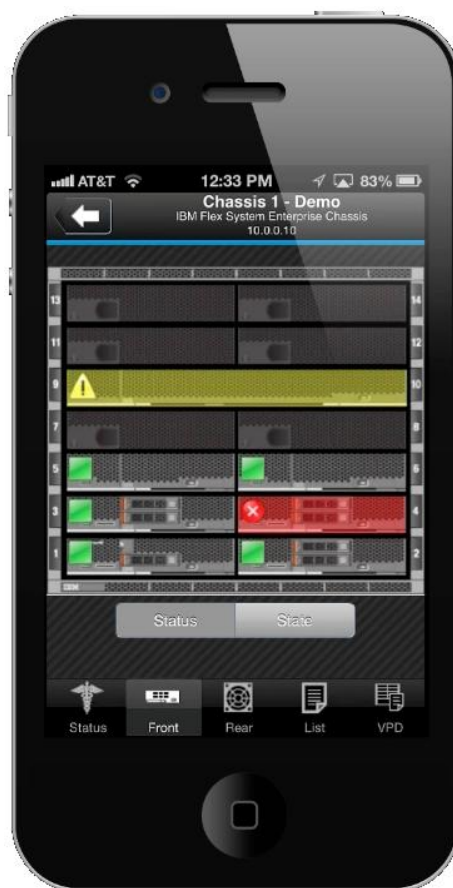
Features in v1.0 (continued)

- Ø Authentication and Security: Secure all connections using encrypted protocols (i.e. SSL): Secure persistent credentials on mobile device
- Ø Access multiple IBM Flex System Managers from a single App
- Ø Cross Mobile Phone Platform
 - Apple iOS: iPhone 4/4s
 - Google Android: Samsung Galaxy S2, Motorola Atrix, Motorola Droid 3, HTC Evo 4G
 - RIM BlackBerry: Torch, Bold Touch, Bold
 - Downloadable from Apple App Store, Google Play, and BlackBerry App World

Mobile UI



FSM Managed
Chassis List



Front Chassis
View

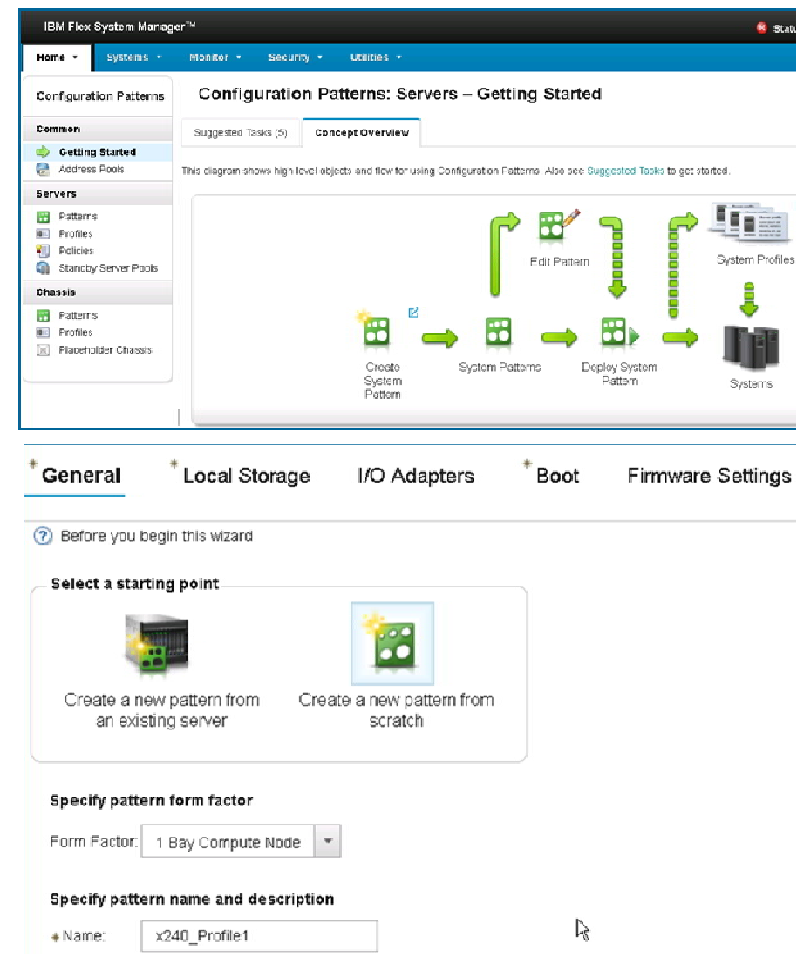


Rear Chassis
View

FSM – SYSTEM AND CHASSIS PROVISIONING

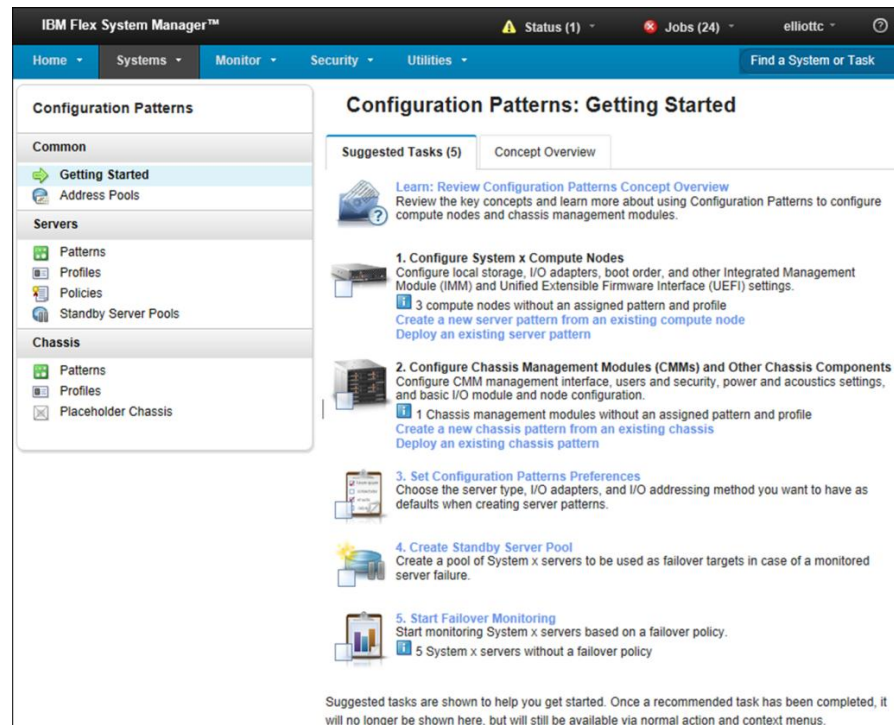
System Provisioning – Initial Node/Chassis Configuration

- Configuration Patterns enable simpler and faster configuration & deployment capability
- Configure local storage, I/O adapters, boot order, and other IMM and UEFI settings
- Supports Configuration of all NICs
 - No FC HBA configuration Support
- Integrated IFM Support
 - Configure Boot from SAN Settings on FC HBA via IFM
- Integrate device configuration & update steps into single interface and workflow
 - For example; Boot target, IMM, adapter settings, virtual address assignment
- Configure CMM network management interface, users and security, power and acoustic settings, and basic I/O module and node IP address assignments



Configuration Patterns - Server Provisioning

- x86 compute nodes
- IP address pools (management network)
- RAID, adapters, boot order and targets,
- IMM, UEFI,
- Create a pattern
 - From Scratch, guided
 - step-by-step by the tool
 - By capturing existing
 - configuration
- Apply a saved pattern to 1-N compute nodes
- Address Virtualization
 - Ethernet, FCoE, FC and vNIC
 - Address Pre-provisioning
- Configure Boot Target
- Spare Node Configuration
- Automatic Node Failover
- Address architecture support 100 Chassis



Server Pattern – General Settings & Local Storage

- Select Compute Node Type installed in the chassis
- Provide a name and description for the new server pattern

New Server Pattern Wizard

* General * **Local Storage** I/O Adapters * Boot Firmware Settings

Define the storage configuration that will be applied to target servers when this pattern is deployed.

Select local storage configuration

Specify storage configuration Keep existing storage configuration on target Disable local disk

This option provides basic RAID configuration for the local boot device.

Specify storage configuration settings

Disk Type: Any type (try HDD first)

Raid Level: RAID 1 (Mirroring)

Number of drives: 2

Back Next Save Save and Deploy Cancel

New Server Pattern Wizard

* General * **Local Storage** I/O Adapters * Boot Firmware Settings

Before you begin this wizard

Select a starting point
Create a new pattern from scratch

Specify pattern form factor

Form Factor: 1 Bay Compute Node

Specify pattern

2 Bay Compute Node
2 Bay Compute & I/O Expansion Node

Name:

Description (limit of 500 characters)

§ Configure the internal storage on the x node

- Create a new RAID array
- Keep the current configuration
- Disable the internal disk controller

Server Pattern – I/O Adapter Configuration

- Configure the I/O adapter profile including the mezz card type
- Configure the port pattern for the adapter
 - Switch Independent Mode
 - Virtual Fabric Mode
 - PNIC Mode
- Configure virtualized addresses to be used with IBM Fabric Manager
 - Virtual address pool for Fibre mezz adapter (i.e. Qlogic)
 - Virtual address pool for Ethernet mezz adapter (i.e. Emulex)
 - MACs automatically selected when virtual address is enabled

New Server Pattern Wizard

* General * Local Storage **I/O Adapters** * Boot Firmware Settings

② If desired you can modify adapter addressing and define additional adapters to match the hardware you expect to configure with this pattern.

Graphic view I/O adapter addressing: **Burned in** **Virtual**

Advanced Settings Assign Pattern More

Location	Type	I/O Bay	Configuration Pattern	I/O Addressing
Compute Node				
LDM Fabric Connector	Virtual Fabric	1-2	IBM VFA-LDM Switch Independent N	
I/O Adapter 2	Fibre Channel			

Edit Virtual Addressing

Ethernet (MAC) address pool: IBM MAC Addresses

Fibre Channel (WWN) address pool: QLLogic WWN Addresses

Address sub-range: Predefined domain 1

Available Ethernet addresses: 100% (7281 out of 7281 addresses remaining)
Available Fibre Channel addresses: 100% (11603 out of 11603 addresses remaining)

Save Cancel

Location	Type	I/O Bay	Configuration Pattern	I/O Addressing
Port 1	Virtual Fabric	1		
Function 1 — NIC	Ethernet	1		
Function 3 — NIC	Ethernet	1		
Function 5 — NIC	Ethernet	1		
Function 7 — NIC	Ethernet	1		
Port 2	Virtual Fabric	2	IBM Switch Independent	Physical Virtual Fabric
I/O Adapter 2	Fibre Channel	3-4		IBM Flex System FC31
Port 1 — HBA	Fibre Channel	3	QLLogic WWN Addresses	Physical Fibre Channel
Port 2 — HBA	Fibre Channel	4	QLLogic WWN Addresses	Physical Fibre Channel

Back Next Save Save and Deploy Cancel

Server Pattern – Node Boot Configuration

- Set Boot Order
- Configure Boot from SAN for IEM

New Server Pattern Wizard

Options

– Add and Remove Boot Options

– Define Boot Device for each Boot Option

Specify boot options and boot device sequences

Order	Boot Option	Boot Device	Boot Target Pattern
1	CD or DVD		
2	Hard disk	Hard Disk 0	
...	No option selected	I/O Adapter 2 - Port 1	No Pattern Defined

Use: All targets

Hard disk
PXE Network
Fibre Channel (SAN)
iSCSI
iSCSI Critical
Embedded Hypervisor
CD or DVD
USB
Diskette
Legacy Only
Windows Boot Manager

New Fibre Channel Boot Target Pattern

*Name: V7K

Description (limit of 500 characters):

*Specify primary boot targets ?

Order	Storage Target WWPN	Target LUN Identifier
1	50:05:01:02:03:04:05:06	0

☐ Specify secondary boot targets ?

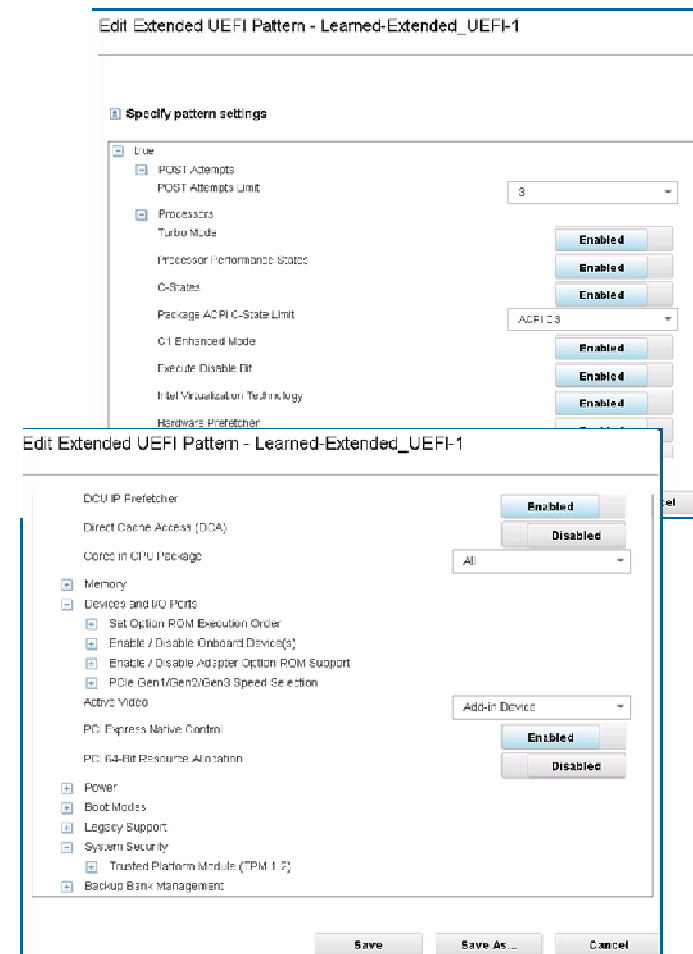
☐ Allow Multiple LUN Identifiers

Create Cancel

6/7/2011

Server Pattern – Node UEFI Configuration

- Configure or View Learned UEFI Settings
- Configure Processor settings
 - Intel Virtualization Technology
 - C-States
 - Turbo Mode
 - C1 Enhanced Mode
 - Execute Disable Bit
- Enable/disable onboard devices
- Enable/disable option ROM support
- Set Option ROM Execution Order
- Configure Boot Modes
- Configure Legacy Support



Server Pattern – IP Po

- Create IP Pools or select DHCP
- Specify unique IP addresses for CMMs, I/O

Modules and Compute Node

- E
- S
- A

New Management Interface Pattern

☐ Hostname
☒ Management IP Addresses

IPv4 Enabled

☐ Obtain dynamic IP address from DHCP server
☐ First try DHCP, then use static IP address from address pool
☒ Obtain static IP address from address pool

*Address pool: IPRange1-1
 *Range: range1

IPv6

☒ Use stateless address auto configuration
☐ Obtain dynamic IP address from DHCP server
☐ Obtain static IP address from address pool

Add IP Address Range

Custom ranges are not specific to a chassis. You can use custom ranges to separate hosts by operating system type, workload types, business function, etc., across all chassis in the FSM domain.

Range Name	First Address	Range Size	Last Address
10.42.162.200	9.42.162.201	1	9.42.162.201

Edit IP Address Pool - IPRange1-1

Description (limit of 500 characters):

Select internet protocol version

Specify network information
 *Subnet mask: 255.255.255.0 Gateway address: 9.42.162.1

Define IP pool address subranges ?

Range Name	First Address	Range Size	Last Address
range1	9.42.162.70	1	9.42.162.70

Overall Network Information ?

Network ID	Broadcast Address	First Address	Host Addresses	Last Address
9.42.162.0	9.42.162.255	9.42.162.2	253	9.42.162.254

Server Pattern – IMM Conf

- Configure IMM Settings or V

– IP Addresses

– DNS

– Port Assignments

– New Management Interface Pattern

– Management IP Addresses

– Domain Name System (DNS)

– Interface Speed

– Port Assignments

HTTP	80
HTTPS	443
Telnet CLI	23
SSH CLI	22
SNMP agent	161
SNMP traps	162
Remote control console	3900
CIM over HTTP	5988
CIM over HTTPS	5989

☐ Hide Defaulted Settings

Create

Cancel

ration
ion

Edit Extended IMM Pattern - Learned-Extended_IMM-1

- Integrated Management Module
 - General Settings
 - Integrated Module Information
 - IMM LU Position
 - Integrated Module Power
 - Power On Server
 - Power On At Specified Date
 - Power On Clear Date
 - Integrated Module Thermal
 - Thermal Mode Policy
 - Integrated Module PXE Setting
 - PXE Next Boot Enabled
 - Remote Alert Recipient

Recipient Number 1		
Recipient Number 2		

Save Save As... Cancel

Edit Extended IMM Pattern - Learned-Extended_IMM-1

- Integrated Module PXE Setting
 - PXE Next Boot Enabled
- Remote Alert Recipient
- Alert Configuration
 - Retry Limit
 - Entries Delay
 - Retry Delay
- SNMP Alerts
- Serial Port Configuration
- USB Port Forwarding Setting
- Network Settings Interface
 - SNMP Configuration
 - Telnet Configuration
 - TelnetSessions
- SMTP Configuration
 - SMTP Server Name
 - SMTP Server Port
- SSH Configuration

Server Pattern – Deploy Configuration Pattern

- Select Servers for configuration deployment
- Select Profile Activation
 - Full (start/restart server now)
 - Partial (defer server restart)

Deploy Server Pattern - x240-CP1

Deploy the server pattern to one or more individual servers, or groups of servers (e.g. chassis). On deploy, one server profile is created for each individual server.

Pattern To Deploy: x240-CP1

Profile Activation: Full — start/restart server now

Available Servers

Name	Bay	Access	Deploy Status
9.42.162.195	...	OK	
Bay2	2	Empty Bay	Ready
9.42.162.199	3	OK	Ready
Bay4	4	Empty Bay	Ready
Bay6	6	Empty Bay	Ready

Selected Servers

Name	Bay	Access	Status
9.42.162.195			
9.42.162.200	5	OK	

Some of the servers you selected are online. To fully activate the profile, these servers will be restarted after deployment:
9.42.162.200

Do you want to deploy the pattern and restart the servers?

Deploy Cancel

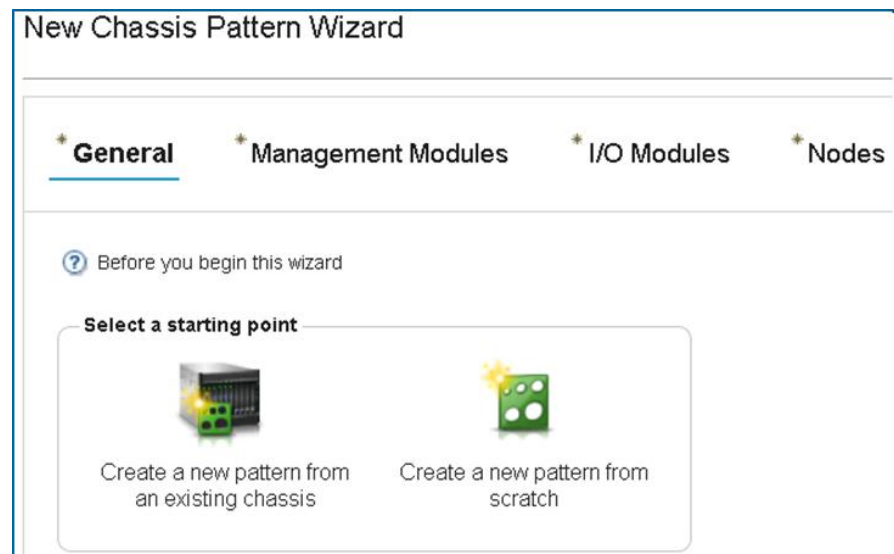
Deploy request was submitted.

Job "Server Profile activation: Tuesday, December 11, 2012" has been created and started successfully. Changes are being propagated to the following servers:
9.42.162.200

You can monitor job progress via the Jobs pod in the banner above.

Configuration Patterns - Chassis Provisioning

- IP address pools (management network)
- Chassis Management Modules
- IO Modules
- Set IP addresses for System P and integrated V7K
- Create a pattern
 - From Scratch, guided step-by-step by the tool
 - By capturing existing configuration
- Does not require CMM Restart



Chassis Pattern – CMM Configuration

- IP Address Pools for CMM's
- Users & Security
 - Configure chassis security profile
 - Configure Global Login Settings
 - Create Permission Groups
 - Create User Accounts
- Power & Acoustics
 - Configure Power Policy
 - Enable/Disable Power Limiting
 - Configure Acoustic Attenuation Policy

Edit IP Address Pool - IPRange1-1

Description (limit of 500 characters):

Select internet protocol version
☒ IPv4 ☐ IPv6

Specify network information
 * Subnet mask: 255.255.255.0 Gateway address: 9.42.162.1

Define IP pool address subranges

Range Name	First Address	Range Size	Last Address
range1	9.42.162.70	1	9.42.162.70

+ Add Range

Overall Network Information

Network ID	Broadcast Address	First Address	Host Addresses	Last Address
9.42.162.0	9.42.162.255	9.42.162.2	253	9.42.162.254

Save Save As... Cancel

New Users And Security Pattern

Specify pattern settings

Security

Overall security policy: ☒ Legacy ☐ Secure

The Legacy level of security policy provides the user with the greatest level of flexibility and responsibility for managing platform security, but this policy is least secure overall. Some of the attributes of Legacy security policy level are listed below

- Weak password policies are permitted
- Well-known passwords for network login are not required to be changed
- Unencrypted communication protocols may be enabled

User Accounts and Permissions

Global Login Settings

Permission Groups

Group name

Default Supervisor Group

Default Operator Group

+ Add Permission Group

User Accounts

New Power and Acoustics Pattern

Specify name and description

Name: PF-Power Profile1

Description (limit of 500 characters):

Specify pattern settings

Power Management

Power Management Policy

☒ AC power source redundancy

☐ AC power source redundancy with compute node throttling allowed

☐ Power module redundancy

☐ Power module redundancy with compute node throttling allowed

☐ Basic power management

Power Limiting Disabled

Acoustic attenuation

Attenuation policy: 5 - Most attenuation (lower noise, lower cooling)

Chassis Pattern – I/O Module Configuration

- Configure Management IP addresses for IO Modules
- Enable/Disable external (non-management ports)
- Enable/disable external management over all ports
- Configure to preserve IP configuration on all I/O module resets

The screenshot shows the 'New Chassis I/O Module Pattern' configuration window. It is divided into two main sections: 'Specify name and description' and 'Specify pattern settings'.

Specify name and description:

- Name:** IOBay1_Profile1
- Description (limit of 500 characters):** (Empty text box)

Specify pattern settings:

- General settings:**
 - ☒ Enable external (non-management) ports
 - ☒ Enabled external management over all ports
 - ☒ Preserve new IP configuration on all resets
 - ☐ Enabled protected mode
- Management IP Addresses:**
 - IPv4:**
 - ☒ Obtain dynamic IP address from DHCP server
 - ☐ First try DHCP, then use static IP address from address pool
 - ☐ Obtain static IP address from address pool
 - IPv6:**
 - ☒ Use stateless address auto configuration
 - ☐ Obtain dynamic IP address from DHCP server
 - ☐ Obtain static IP address from address pool

There is an 'Enabled' toggle button on the right side of the IPv6 settings.

System Provisioning - Bare Metal Deployment

Deploy Compute Node Images

Select one or more X-Architecture compute nodes to which you want to deploy images. [Learn More...](#)

Note: Before you begin, validate the IBM Flex System Manager network port being used to attach to the data network is configured to be on the same network as the network ports on the compute node.

☐ Deploy this image to all compute nodes: esxi5.1-x86_64-install-Virtualization [Import additional images](#)

Available Image Profiles

Chassis and Node	Bay	Access State	Discovered Operating System	Deploy Status	MAC Address	Image to Deploy
ATS GA Chassis						
172.23.18.117	3	OK	Not Discovered	Ready	34:40:B5:BE:D3:50	esxi5.1-x86_64-install-Virtualization
172.23.18.118	4	No access	Not Discovered	Not Ready	34:40:B5:BE:D1:88	esxi5.1-x86_64-install-Virtualization
172.23.18.119	5	OK	Not Discovered	Ready	00:90:FA:10:02:2C	rhels6.3-x86_64-install-Basic
172.23.18.120	6	OK	Not Discovered	Ready	00:90:FA:10:00:56	rhels6.3-x86_64-install-Minimal
						rhels6.3-x86_64-install-Virtualization
						esxi5.1-x86_64-install-Virtualization

- § Deploy ESXi or Redhat Linux to x86 nodes (up to 55 simultaneously)
 - § ESXi is pre-imported in the FSM
 - § RHEL 6.2 or 6.3 .iso image can be imported to FSM
 - § When RHEL image is imported 3 image profiles re created: minimal, basic, and virtualization
- § Up to 2 images max on FSM

Importing a Additional Images for Deployment

- ssh to the FSM
- scp the RedHat .iso image to the user directory (i.e. /home/USERID)

```
USERID@fsm-ga2:~> smcli importosimage /home/USERID/RHEL6.3-20120613.2-Server-x86_64-DVD1.iso
DNZFM8757I The image was imported sucessfully.
```

- Once the import is complete, the command `smcli lsosimages` should display both images

```
USERID@fsm-ga2:~> smcli lsosimages

OS Name: esxi5.1
OS Profiles:
esxi5.1-x86_64-install-Virtualization

OS Name: rhels6.3
OS Profiles:
rhels6.3-x86_64-install-Basic
rhels6.3-x86_64-install-Minimal
rhels6.3-x86_64-install-Virtualization
```

- The command `smcli rmimage` used to remove unwanted images

LIFE CYCLE MANAGEMENT AND MONITORING

Resource Discovery

- Discover manageable resources in the environment

The screenshot displays the IBM Flex System Manager web interface. The top navigation bar includes 'Welcome eliottc', 'Problems' (9), 'Compliance' (8), and 'Jobs' (2). The main content area is split into two panels.

System Discovery Panel (Left):

- Header: System Discovery
- Text: Use system discovery to discover manageable resources now or schedule a discovery. You can discover resources by a single IP address or host name, discover resources of the same type, or discover resources by a range of IP addresses. Discovery profiles enable you to customize discoveries, including the resources to discover and the inventory for the discovered resources.
- Link: [Learn more about using discovery](#)
- Select a discovery option: **Range of IPv4 addresses**
- Starting IP address: [] . [] . [] . []
- Ending IP address: [] . [] . [] . []
- Select the resource type to discover: **All**
- Buttons: **Discover Now**, **Schedule...**

All Systems Panel (Right):

- Header: All Systems
- Navigation: Home, Systems, Monitor, Security, Utilities
- Buttons: **Find a System**, **Filter**
- Table:

Name	Type	Access	Problems	Compliance
fsm-poc.atsxlab.com	Farm	OK	OK	OK
172.23.19.101	Operating System	OK	OK	Critical
172.23.19.109	Operating System	OK	OK	Unknown
aix2.atsxlab.com	Operating System	OK	OK	OK
aix3.atsxlab.com	Operating System	OK	OK	OK
aix4.atsxlab.com	Operating System	OK	OK	OK
aix5.atsxlab.com	Operating System	OK	OK	OK
aix6.atsxlab.com	Operating System	OK	OK	OK
fsm-poc.atsxlab.com	Operating System	OK	Warning	OK
ga1-p460-vios1.atsxlab.com	Operating System	OK	Information	OK
ga1-p460-vios2.atsxlab.com	Operating System	OK	Information	OK

Total: 75 Selected: 0

System Monitoring and Automation

Automated notification and remediation of

The screenshot displays the IBM Flex System Manager interface. The left sidebar shows navigation options: Chassis (1), Hosts and VSs (31), Network (14), Storage (2), Favorites (0), and All Systems (75). The main content area is titled 'Hardware Map' and 'Event Automation Plans'. A 'Create Action' dialog box is open, showing a list of actions to select.

Event Automation Plans

Use event automation plans to automate tasks based on received events. An event automation plan includes an event filter, which specifies the types of events on which to take action, and one or more event actions that are performed in response to received events.

Create Action

Select the type of action that you want to create.

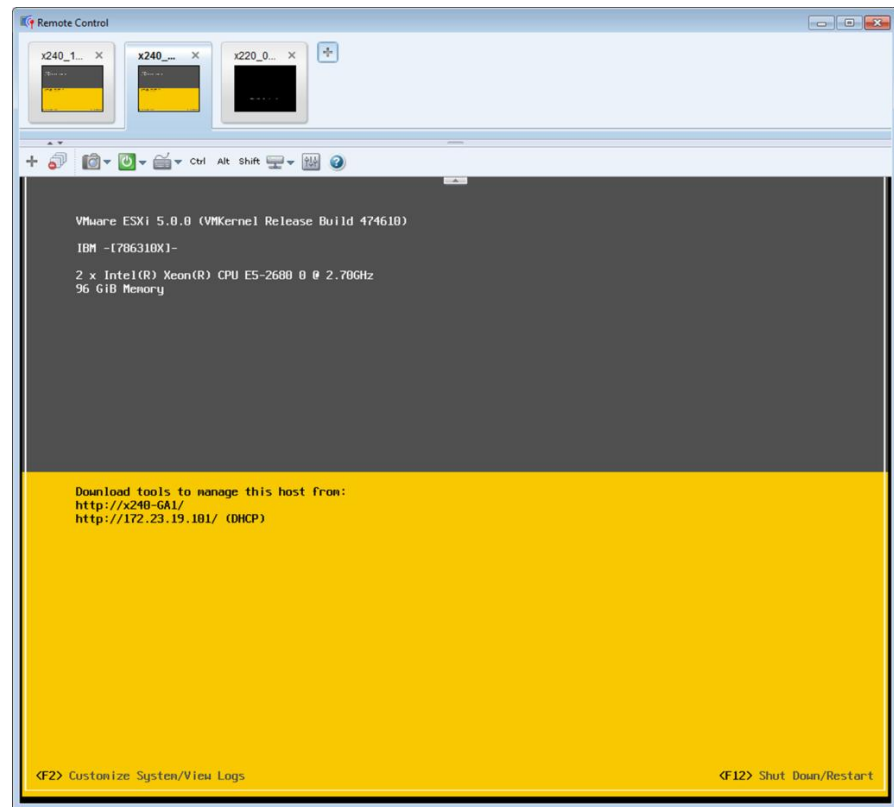
Select	Name	Type
<input type="radio"/>	Send an e-mail to a mobile phone	Common
<input type="radio"/>	Send an e-mail (Internet SMTP)	Common
<input type="radio"/>	Start a program on the system that generated the event	Common
<input type="radio"/>	Start a program on a system	Common
<input type="radio"/>	Send an event to Tivoli Event Integration Facility (EIF) probe	Advanced
<input type="radio"/>	Post to a newsgroup (NNTP)	Advanced
<input type="radio"/>	Send an SNMP trap to an IP host	Advanced
<input type="radio"/>	Timed alarm that generates an event	Advanced
<input type="radio"/>	Static group: add or remove the event-generating system	Advanced
<input type="radio"/>	Start a task on a specified system	Advanced
<input type="radio"/>	Log to a log file	Advanced
<input type="radio"/>	Static group: add or remove group members	Advanced
<input type="radio"/>	Send an SNMP inform request to an IP host	Advanced
<input type="radio"/>	Set an event system variable	Advanced
<input type="radio"/>	Send events to Syslog server	Advanced

Page 1 of 2 | 1 | Selected: 0 Total: 19 Filtered: 19

OK Cancel Help

FSM Remote Virtual Presence for Maintenance and Administration

- The FSM Remote Control application allows for concurrent remote control of multiple nodes within a chassis
 - Can be launched from FSM or directly from desktop
 - JPG screen capture for saving BSOD/PSOD
- Virtual media allows mounting/booting CD/DVD, ISO
 - A single ISO can be mounted to multiple nodes
 - Would not recommend mounting a single ISO to more than 4 nodes a
- Server power control



Collect, Store, and Report on Asset Inventory

- Compute Nodes
 - Firmware
 - OS Specific Information
 - Internal Components
 - I/O Addresses
- I/O Switch Modules
 - Firmware
 - Ports
 - I/O Addresses
- Storage Devices
 - Firmware
 - Drives
 - I/O Addresses
 - Storage Volumes

The screenshot displays the IBM Flex System Manager web interface. The top section, titled 'Installed Firmware', shows a table of installed components:

Name	Category	Subcategory	Version	Vendor	Software Ident
2.0.25.768	BIOS	HBA	4.1.422.0	Emulex Corporation	90Y3556
CNA Firmware v4.1.422.0 90Y3556 0000C9F537E0000	Firmware	HBA	4.1.422.0	Emulex Corporation	90Y3556
CNA Firmware v4.1.422.0 90Y3556 0000C9F53820000	Firmware	HBA	4.1.422.0	Emulex Corporation	90Y3556
CNA Firmware v4.1.422.0 90Y3556 0000C9F53860000	Firmware	HBA	4.1.422.0	Emulex Corporation	90Y3556
CNA Firmware v4.1.422.0 90Y3556 0000C9F538A0000	Firmware	HBA	4.1.422.0	Emulex Corporation	90Y3556
Diagnostics	Diagnostic	System	9.29		DSYT

The main interface shows the 'View and Collect' tab. On the left, a tree view lists 'Collected Items' including Summary, Hardware Devices, Network Configuration, Physical Hardware, Related Systems, System Internals, System Software, and Virtual Configuration. The 'System Summary' panel on the right provides an overview of the managed systems.

System Summary:

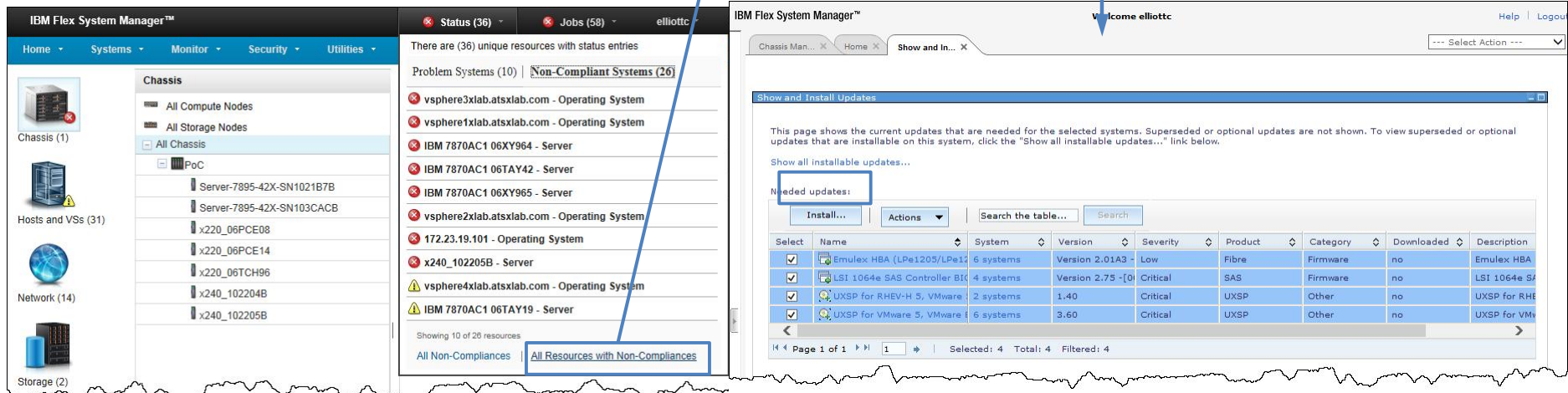
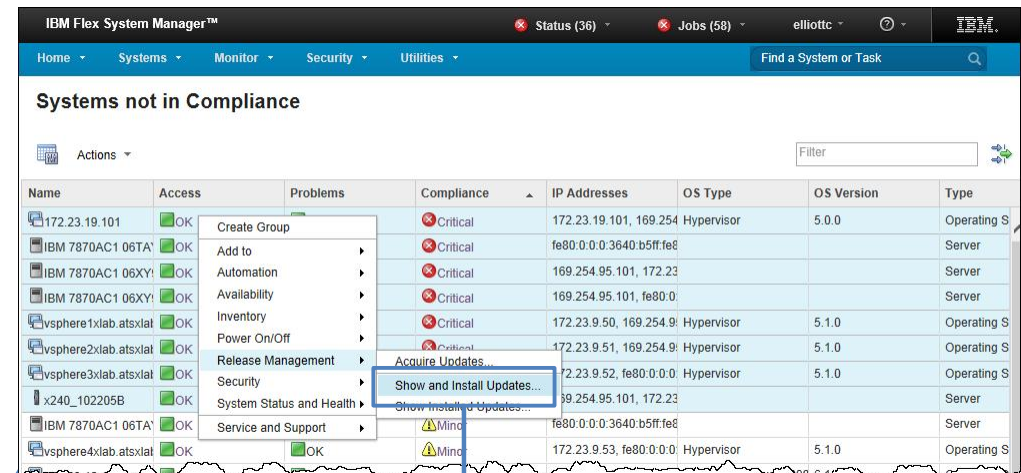
- Name: All Operating Systems
- Type: Operating System
- Description: Contains all operating systems that can be managed
- Owner:
- Access State: 16 Unlocked, 1 Locked, 0 Partially Locked
- Communication State: 17 Online, 0 Offline
- Last Collected: May 7, 2013 9:45 AM

The 'Included Systems' table lists individual systems with their names, types, descriptions, access states, last collection times, and protocols:

Select	System name	Type	Description	Access State	Last Collecte	Protocols
<input type="checkbox"/>	vcxlab.atxslab.com	Operating System	Virtual Server Re	Full Access/Com	May 7, 2013 9:4	vCenter, D
<input type="checkbox"/>	vsphere1xlab.atxslab.com	Operating System		Full Access/Com	May 7, 2013 9:4	CIM
<input type="checkbox"/>	vsphere2xlab.atxslab.com	Operating System		Full Access/Com	May 7, 2013 9:4	CIM
<input type="checkbox"/>	vsphere3xlab.atxslab.com	Operating System		Full Access/Com	May 7, 2013 9:4	CIM
<input type="checkbox"/>	vsphere4xlab.atxslab.com	Operating System		Full Access/Com	May 7, 2013 9:4	CIM
<input type="checkbox"/>	x240-ga2.atxslab.com	Operating System		No Acc Full Access/Communication OK		
<input type="checkbox"/>	172.23.19.101	Operating System		Full Access/Com	May 7, 2013 12:	CIM
<input type="checkbox"/>	172.23.19.109	Operating System		Full Access/Com	May 8, 2013 8:0	DCOM
<input type="checkbox"/>	aix2.atxslab.com	Operating System		Full Access/Com	May 15, 2013 5:	CAS, SSH
<input type="checkbox"/>	aix3.atxslab.com	Operating System		Full Access/Com	May 15, 2013 5:	CAS, CIM,
<input type="checkbox"/>	aix4.atxslab.com	Operating System		Full Access/Com	None	CAS, CIM,
<input type="checkbox"/>	aix5.atxslab.com	Operating System		Full Access/Com	May 15, 2013 5:	CAS, SSH
<input type="checkbox"/>	aix6.atxslab.com	Operating System		Full Access/Com	May 15, 2013 5:	CAS, SSH
<input type="checkbox"/>	fsm-poc.atxslab.com	Operating System		Full Access/Com	May 7, 2013 9:4	CAS
<input type="checkbox"/>	ga1-p460-vios1.atxslab.com	Operating System		Full Access/Com	May 15, 2013 5:	CAS, CIM,

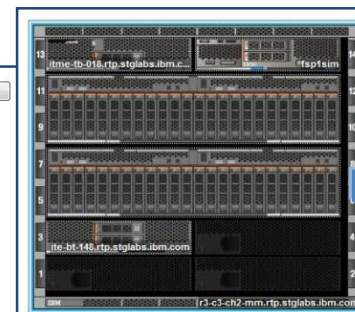
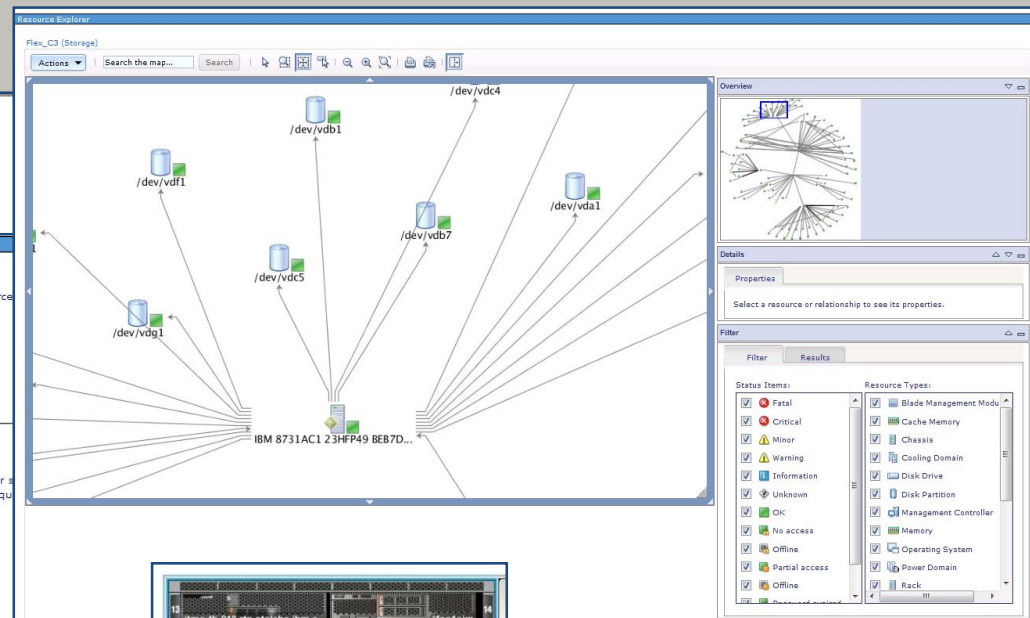
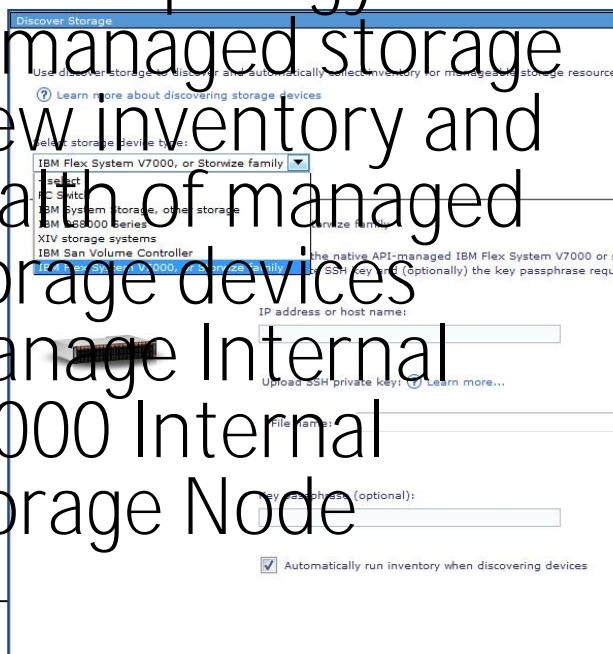
Node and Chassis Firmware Remediation

- Download and install firmware for:
 - Compute Nodes
 - Chassis Management module
 - FC I/O Modules
 - IBM Operating Systems
 - Supported Linux Operating Systems



Storage Monitoring and Management

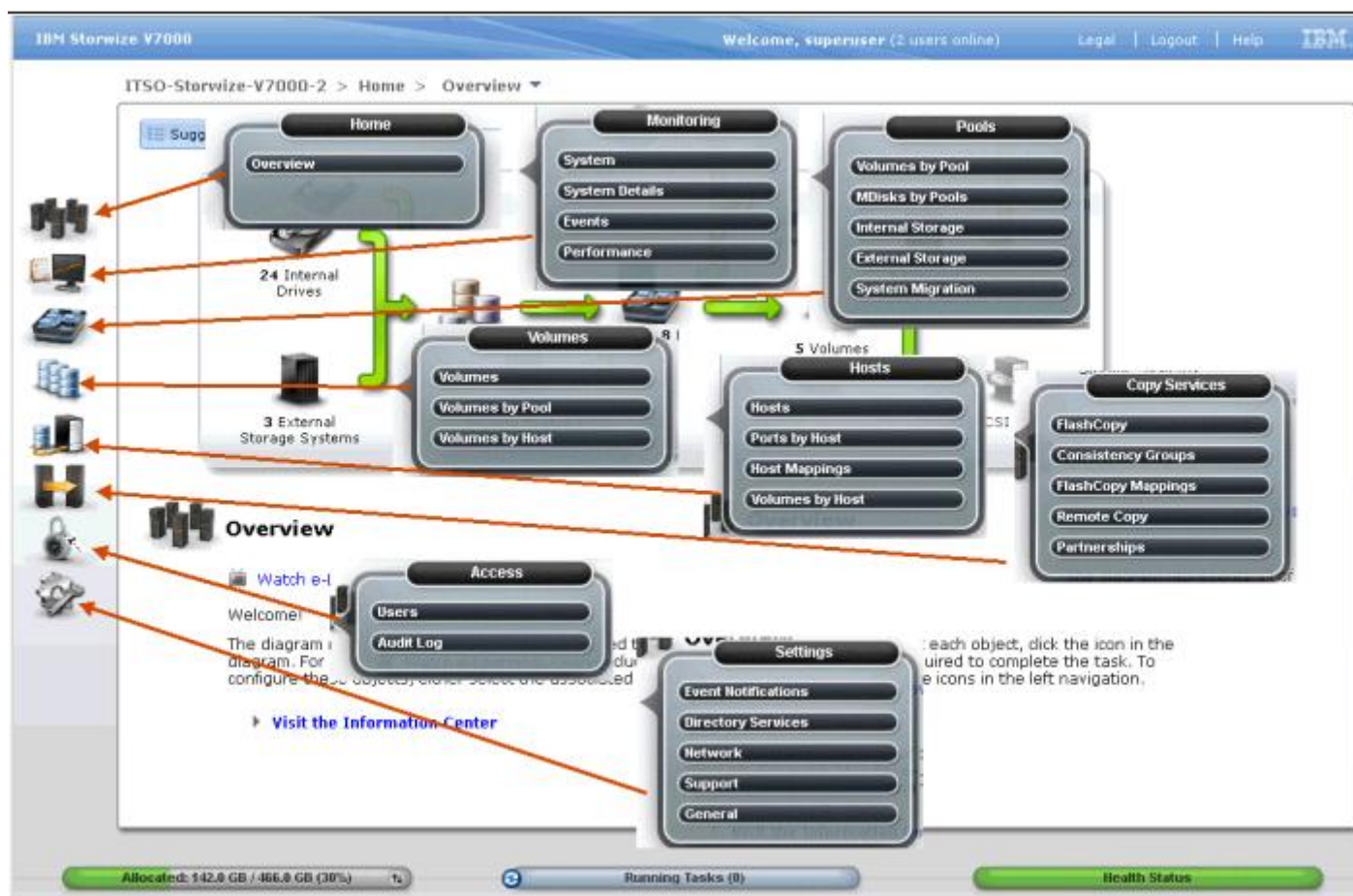
- Launch Fibre switch Element Manager to zone storage
- Discover Storage Controllers
- View topology views of managed storage
- View inventory and health of managed storage devices
- Manage Internal v7000 Internal Storage Node



Discovered Manageable Systems:

Name	Type	State
Storwize V7000...	StorageSubsystem	OK

V7000 Functions Interface



Network Monitoring and Management

- Launch Network switch Element Manager to configure the switch
- Discover virtual switches in addition to physical switches
- View topology views of managed network devices
- View inventory and health of managed network devices
- Create configuration templates for configuration of switches:
 - VLAN
 - Base credentials
 - Protocol configuration

The screenshot displays the IBM Flex System Manager Networking OS interface. The top navigation bar includes 'Configure', 'Statistics', 'Dashboard', and 'Networking OS'. Below this, a status bar shows the date and time, and a message: '11. May 12 20:24:13 Poc-sw1 ALERT stg: STG 121, new root bridge'.

The main content area is divided into two sections. The top section, titled 'Switch Ports Dashboard', shows a table of switch ports. The bottom section, titled 'VLAN port configuration', shows a table of VLAN configurations.

Switch Ports Dashboard Table:

Status	Switch Port Info	Operational Status	Speed Duplex FlowCtl	Input Frames Output Frames	LinkState Changes Total Errors
disabled	INTA1: name: INTA1 stp: FWD ext stp guard: no rmon: disabled ErrDisable Recovery: disabled Link Flap Dampening: disabled Flood Blocking: disabled FDB Learning: enabled Tagging: disabled PVID: 379 VLANs: 379 PVID Ingress Tagging: disabled	operational	10000/Full/Both	62783361 79593639	3 0
disabled	INTA2: name: INTA2 stp: FWD ext stp guard: no rmon: disabled ErrDisable Recovery: disabled Link Flap Dampening: disabled Flood Blocking: disabled FDB Learning: enabled Tagging: disabled PVID: 379 VLANs: 379 PVID Ingress Tagging: disabled	operational	10000/Full/Both	11130384 3821703	1 0
disabled	INTA3: name: INTA3 stp: FWD ext stp guard: no rmon: disabled ErrDisable Recovery: disabled Link Flap Dampening: disabled Flood Blocking: disabled	operational	10000/Full/Both	2792914 10033034	1 0

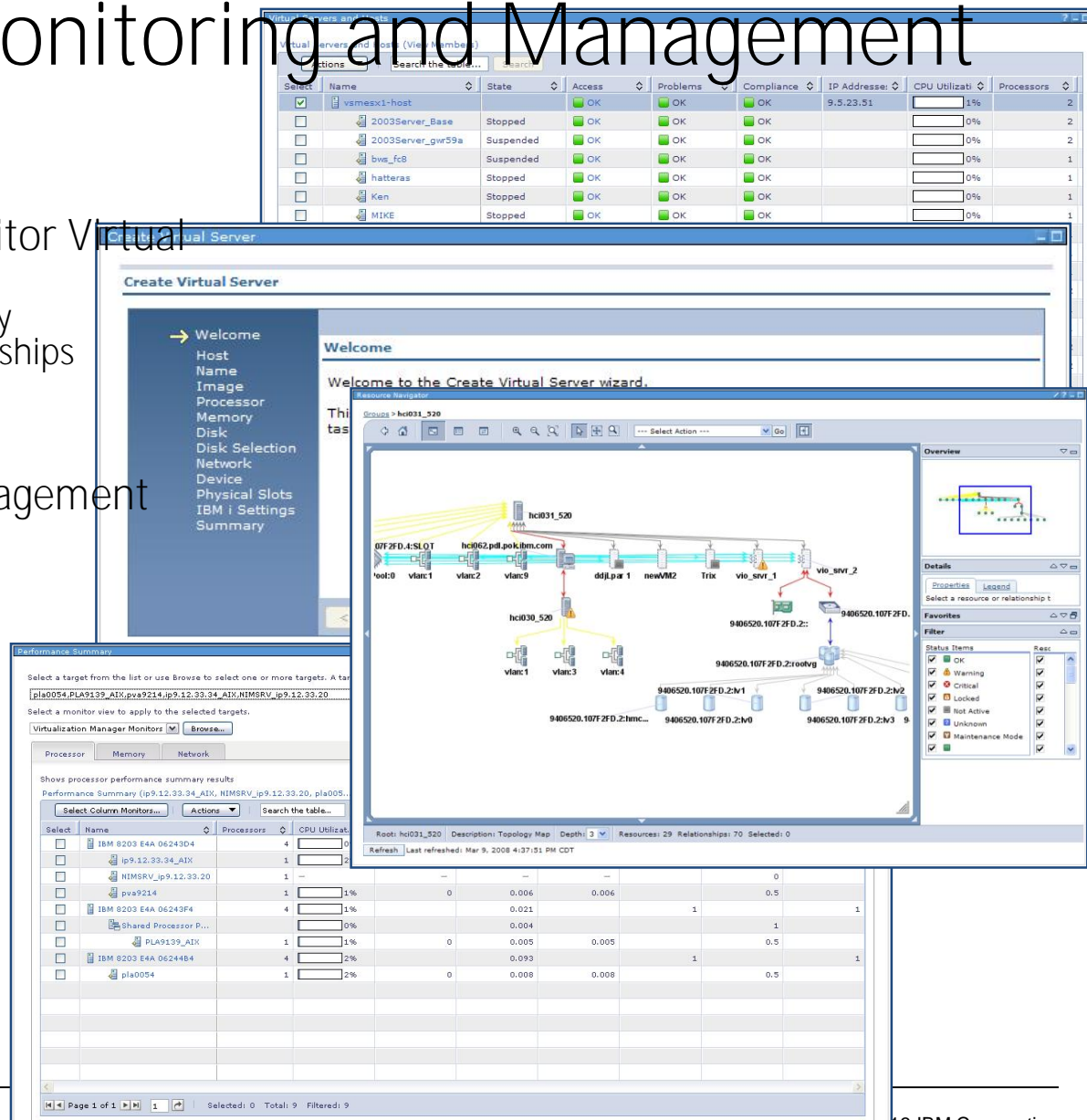
VLAN port configuration Table:

Select	Port Number	Port VLAN ID	Frame Types	GVRP Status	Ingress Filtering
<input type="checkbox"/>	1	379			
<input type="checkbox"/>	10	379			
<input type="checkbox"/>	11	379			
<input type="checkbox"/>	12	379			
<input type="checkbox"/>	13	379			
<input type="checkbox"/>	14	379			
<input type="checkbox"/>	15	1			
<input type="checkbox"/>	16	1			
<input type="checkbox"/>	17	1			
<input type="checkbox"/>	18	1			
<input type="checkbox"/>	19	1			
<input type="checkbox"/>	2	379			
<input type="checkbox"/>	20	1			
<input type="checkbox"/>	21	1			
<input type="checkbox"/>	22	1			

The bottom of the interface shows a status bar with 'Page 1 of 5', 'Selected: 0', 'Total: 66', and 'Filtered: 66'. Navigation buttons include '< Back', 'Next >', 'Finish', and 'Cancel'.

Virtualization Monitoring and Management

- Discover, Visualize and Monitor Virtual Servers
 - Host and Virtual Server Discovery
 - Topology Maps showing relationships
 - Virtual Resource Monitoring
 - Host and Virtual Server Status
 - Thresholds
- Virtual Server Lifecycle Management
 - Create/Delete Virtual Servers
 - Dynamically Edit Virtual Servers
- Basic Virtual Server Mobility
 - Move Virtual Server
 - Evacuate Host
 - Relocation Plans
- Cross Platform Consistency
 - VMware ESX
 - VMware vCenter
 - Hyper-V
 - KVM
 - PowerVM



QUESTIONS ? ? ?