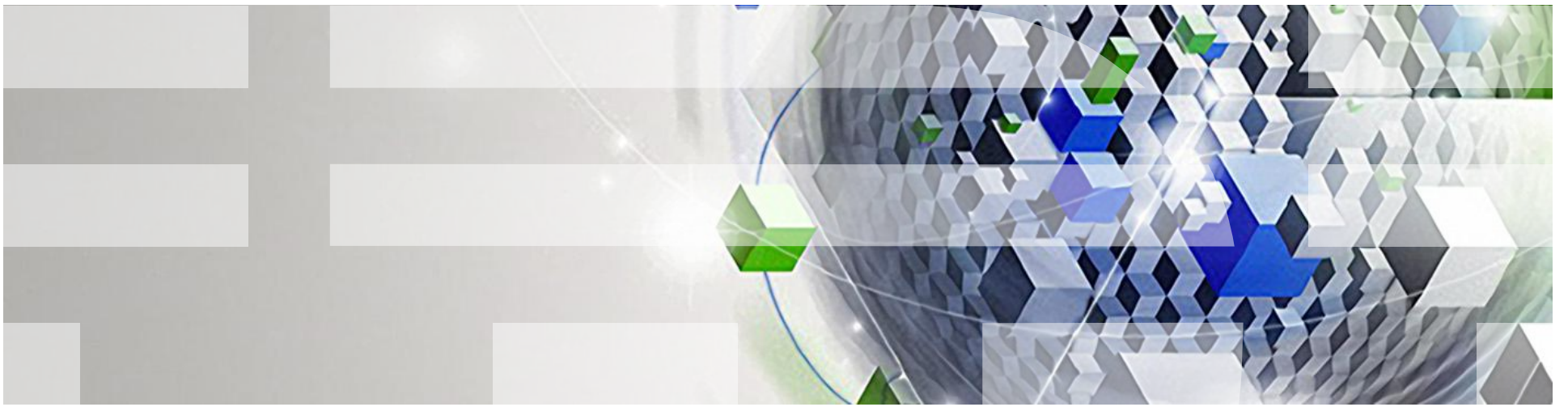
Chris Eisenmann - Certified Consulting I/T Specialist - TSS Advanced Technical Skills

19 May 2011

IBM Power Systems SDMC

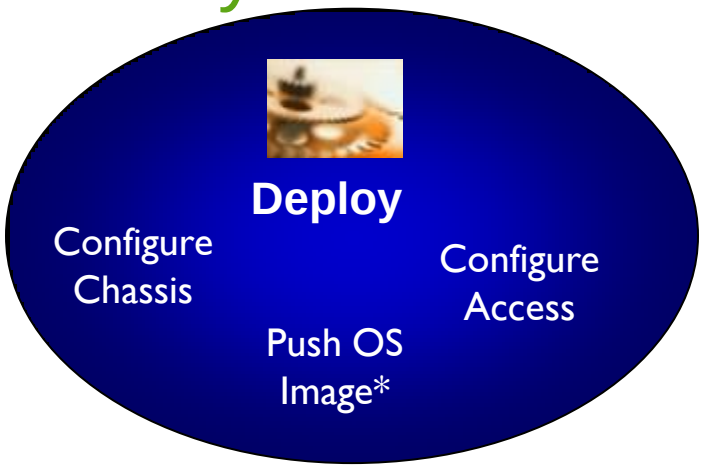


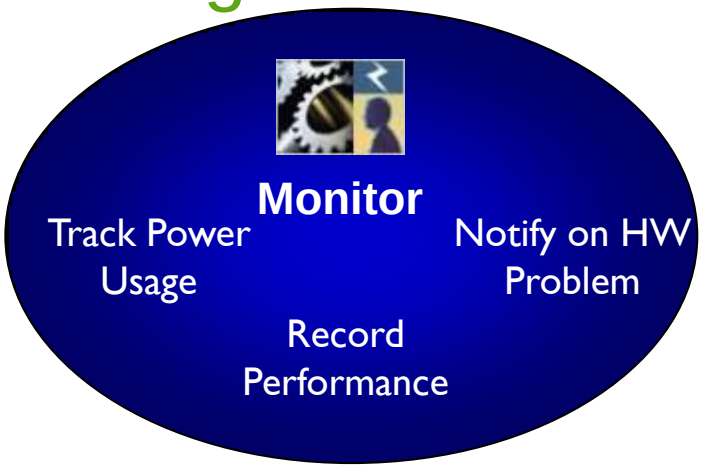
Power your planet.

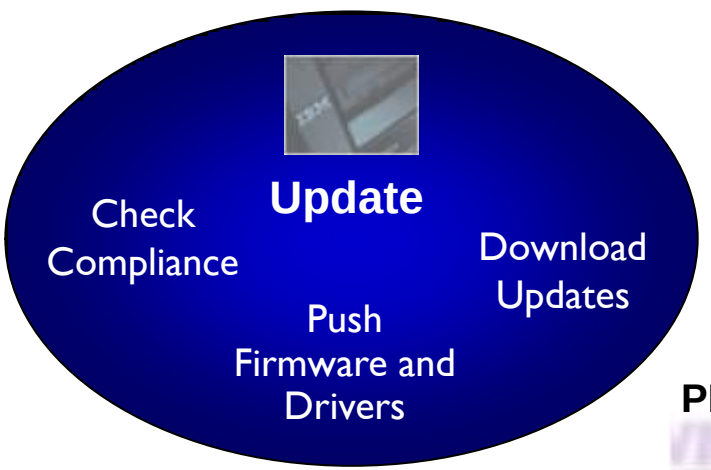
Agenda

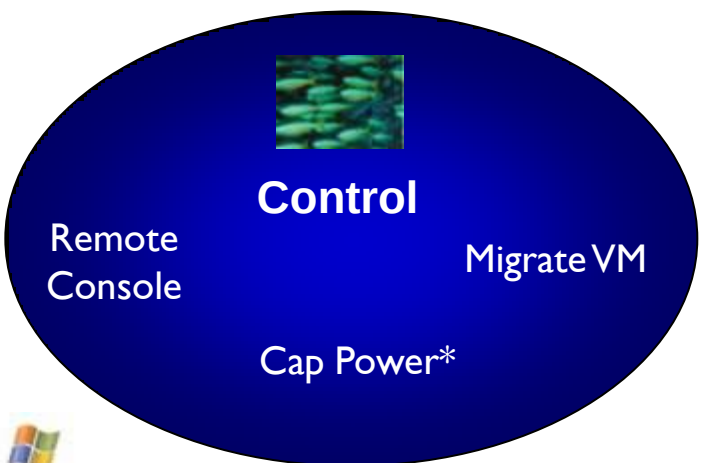
- IBM Systems Director Overview
- Overview of Systems Management Direction
  - Introduction to SDMC
- HMC / SDMC Roadmap
- SDMC Details / Screen Shots

IBM® Systems Director – Platform Management









*** Fee based plug-in required**

Power your planet.

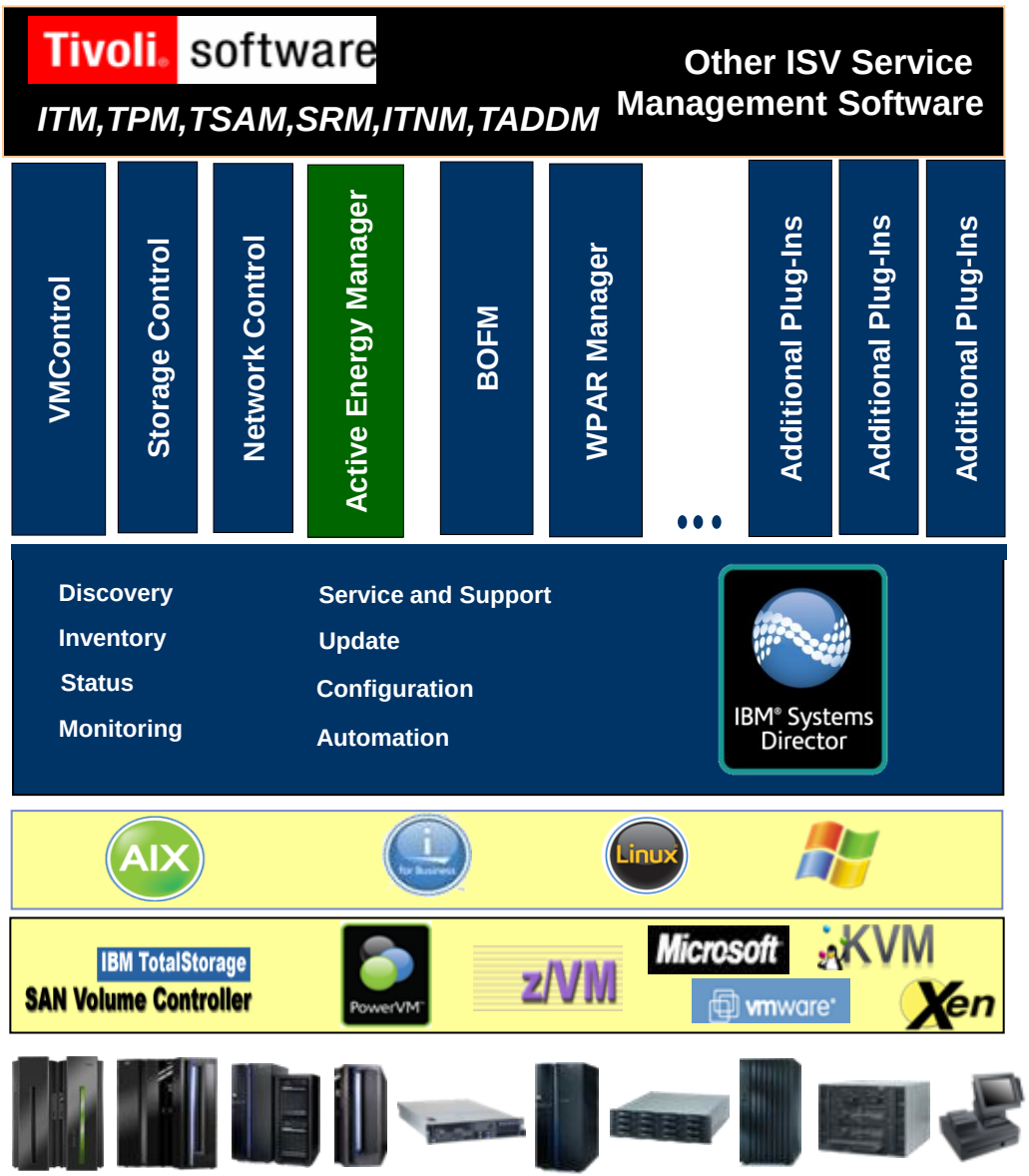
IBM Systems Director

Upward Integration…

Extend with Advanced Capabilities…

Basic Care and Feeding…

Cross Platform Coverage…



Power your planet.

Systems Director Editions

Express Edition (Underlying Edition of SDMC)

- ✓ View the relationships between systems
- ✓ Manage virtual machines across multiple hypervisors
- ✓ Remotely access system status and updates

Standard Edition

- ✓ Reduce time to deploy virtual AIX and Linux workloads
- ✓ Monitor and control energy use
- ✓ Monitor and configure networking systems

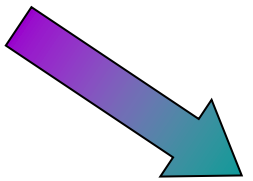
Enterprise Edition

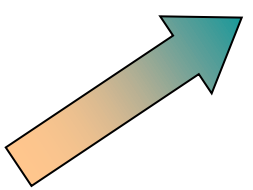
- ✓ Automate workload deployment in system pools of AIX and Linux virtual machines
- ✓ Analyze real-time and historical status
- ✓ Analyze predictive resource capacity data

Systems Director Management Console

Express Edition

Integrated Virtualization Manager





SDMC:

- **Manage Multiple Systems**
- **New User Browser Interface**
- **Enhanced Functionality**
- **Support 1000 LPARs**
- **Supports P6 & P7**

Power your planet.

Power Systems Management Options

- Power Systems clients have three different management options

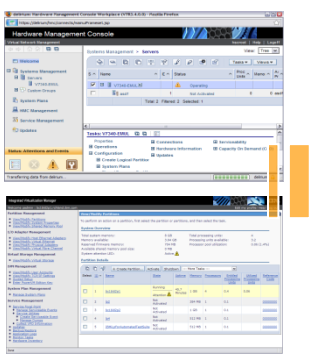
Product	Offering / Packaging	Function
HMC	Physical appliance (uses Linux)	Complete virtualization and service management for Power
IVM	Lightweight utility (built into VIOS)	Basic configuration and service for Power
SDMC	Software (installed on management server)	Comprehensive cross-platform mgmt

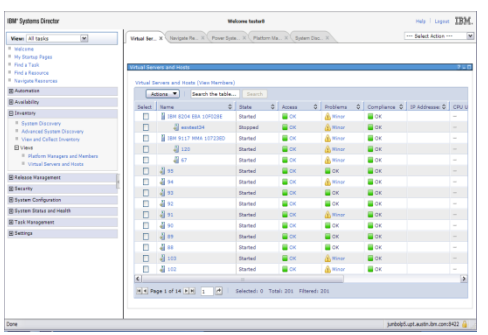
Strategy: Converge on IBM Systems Director Management

- Standardize the user interfaces. Easier for clients to transition and scale up
- Converge branding: IBM System Director is the strategic management tool

HMC
(Hardware Management Console)

IVM
(Integrated Virtualization Manager)





SDMC
(Systems Director Management Console)

Power your planet.

Systems Director Management Options

Hardware Appliance

IBM Provided Hardware

Plus Software Appliance:
- **SDMC Management Base**
- **Systems Director Express Edition**

Turn Key Solution

Software Appliance

Software Appliance:
- **SDMC Management Base**
- **Systems Director Express Edition**

Non Turn Key Solution

Utilize existing x86 virtualization infrastructure

Customer provided hardware
- **Finite set of server options**

Power your planet.

SDMC Function Highlights

Functions Included

- **All configuration, service and management capabilities provided by the HMC and IVM today will be supported natively in IBM Systems Director**
  - At a high level SDMC provides Server Management and PowerVM Virtualization Management
  - Console Management becomes a responsibility of Director
- **CLI Interface**
  - Same functionality (for the Server Management and PowerVM Management functions)
  - Syntactically there are no differences.
    - Aliases have been provided to offer almost complete compatibility
- **GUI interface.**
  - Same functionality (for the Server Management and PowerVM Management functions)
  - Completely new to comply with Director look and feel
  - Some modifications to simply user navigation and tasks

SDMC Features Adds vs HMC

Capability	SDMC	vs	HMC
Simplified Virtualization	✓		
Blades Management	✓		
Mobility between Blades and Servers	✓		
Dual VIOS for Blades	✓		
Active Memory Expansion for Blades	✓		
Virtual Appliance Option	✓		
Consistent Look and Feel	✓		
OS Management and Monitoring	✓		

- SDMC provides simplified Virtualization Management (vs HMC)
- SDMC can manage Blades (HMC cannot)
- SDMC is offered in a virtual appliance (HMC is not)
- SDMC integrates Power hardware, service, and virtualization management into a common look and feel (Director)

SDMC Appliance Offerings: Hardware & Software

- The **Hardware Appliance** is very similar to today's HMC
  - Will use 7042-CR6 hardware platform as the base (with additional DASD & Memory)
- Can chose to run exactly the same software (OS & all) on an x86 Hypervisor (EG VMware or KVM)
- When would you use the **Hardware Appliance**?
  1. Required for all mid/high-end systems (> 550 / 750)
  2. Want a turn-key solution that is delivered, pre-installed, and serviced as one entity
  3. Never used an x86 Hypervisor before and don't feel a pressing need to learn

SDMC Appliance Offerings: Hardware & Software

- When would you use the **Software Appliance**?

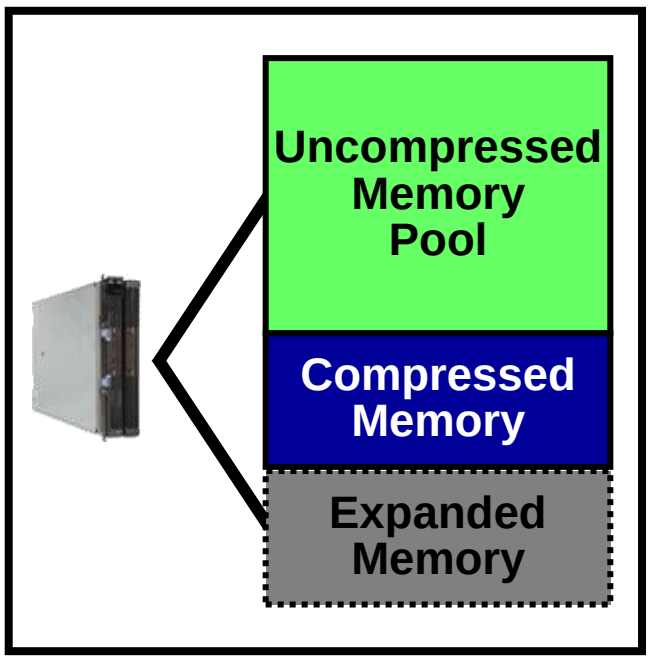
1. All of the systems are Low / Mid-range systems (550/750 and below)
2. All of my systems have static IP addresses and don't rely on an HMC for DHCP.
   NOTE: While it's possible to use DHCP on the virtual appliance, it complicates the hypervisor network configuration and cabling.
3. Already have an x86 virtualization infrastructure that can have network connectivity to my Power systems.
   - NOTE: It's possible (and quite easy) to create a bare-bones infrastructure needed to run the virtual appliance, however the hardware appliance is even easier.
4. Want to take advantage of x86 virtualization – backups via snapshots, quick restores, mobility, etc.

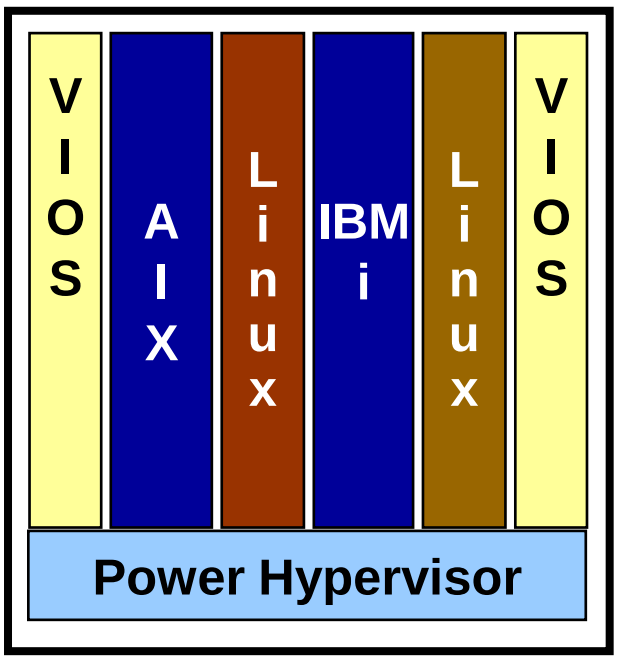
SDMC Function Differences

- Functions Being Removed with SDMC
  - Modem Support
  - VPN for Call Home
    - Will still support VPN for inbound support, but not for outbound
- Servers Supported
  - Will support P6 and P7 servers **including blades**.
  - No support for POWER 5 servers

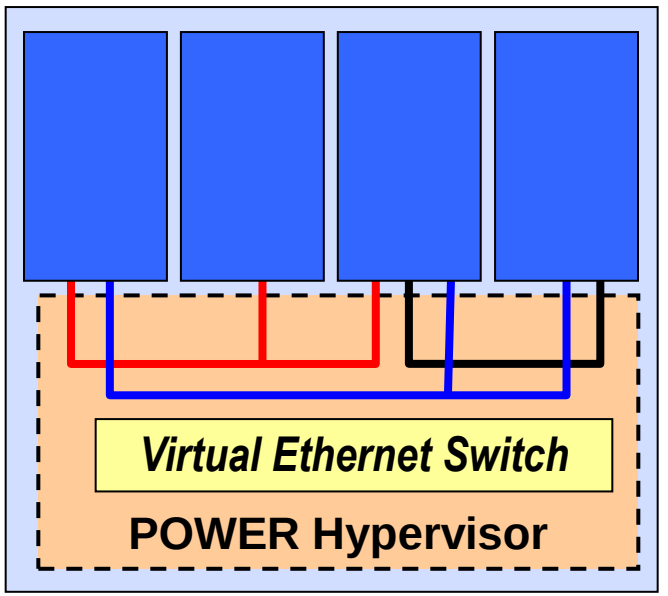
SDMC Support for Blades

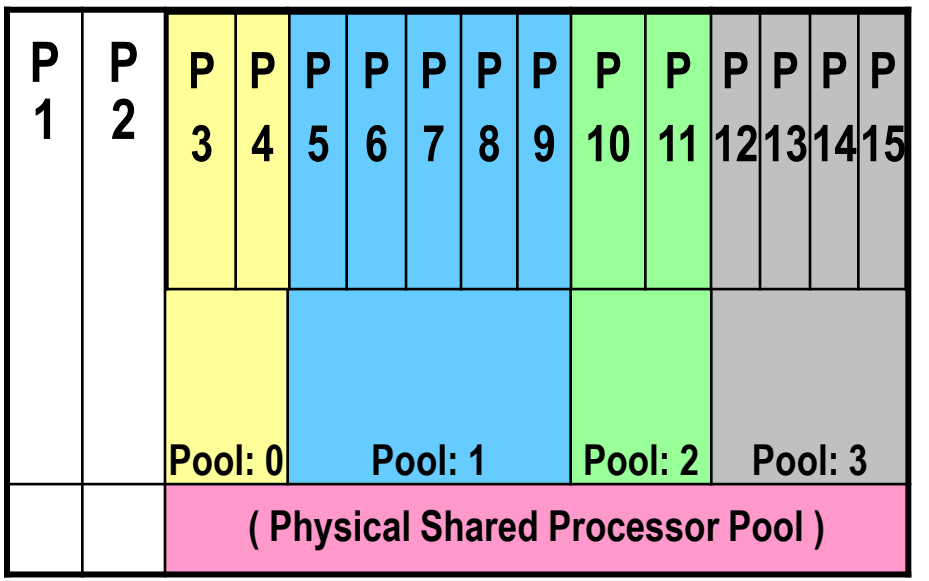
- **No Limitations for blades**
  - LPAR Mobility between any systems
  - Active Memory Expansion Support
  - Multiple VIOS partitions
  - Shared Processor Pool support
  - Multiple Virtual Network Switches





Additional SDMC support for Blades





Multiple Virtual Ethernet Switches

Multiple Shared Processor Pools

- **SDMC: Equal support for blades and servers**

SDMC Function - Differences

Enhanced Virtualization Management:

- IVM – like Ease of Use:
  - Enhanced VIOS / Virtual Adapter management – SDMC manage your virtual slots automatically
  - More intuitive DLPAR – ability to modify resource assignments whether the partition is On or Off

Terminology:

- Fundamental terminology changes.
  - Example, a ‘LPAR’ is now a ‘Virtual Server’
  - Servers are now ‘Hosts’

Additional Function:

- Director provides a lot of additional function including things such as AEM, Image Manager, etc.

SDMC Function - Differences

Users and Roles:

- Same functionality, just new names and ways to create users, roles, and groups.
- Session timeout and idle timeouts are global and not configurable per user

User Interface:

- GUI:
  - Most tasks will have the same flow – adjusted for Director look/feel
  - Some function has been enhanced for ease-of-use.
- Command line interface is the same.

Redundancy Model(s):

- New active/passive HA model optional

Terminology Differences

HMC Terminology	SDMC Terminology
Managed System	Server / Host
Hardware Management Console	Platform Manager
Frame / BPA	Power Unit
LPAR	Virtual Server
VIOS	Utility Virtual Server
Users: hscpe / hscroot	pe / sysadmin
Partition Mobility	Relocation
Remove connection	Remove MEP (managed End-Point)
hmcuser	SMUser
hmcoperator	SMManager

SDMC Function Mapping

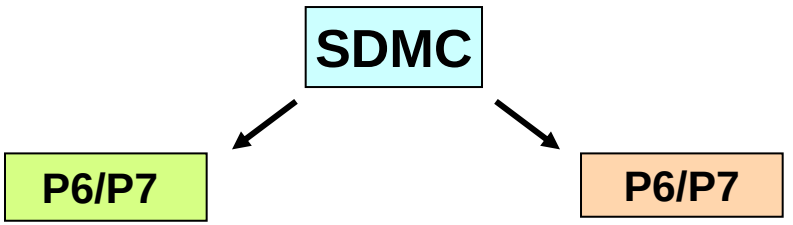
Function on HMC	Function on Director / PSM
CEC and Frame Management	Ported from HMC. GUI is new
PowerVM Partition Virtualization	Ported from HMC. GUI is new.
Guided Repair	Ported from HMC. GUI is new
Concurrent Maintenance	Ported from HMC. GUI is new
Problem Analysis	Ported from HMC. GUI is new
Serviceable Event Management	Provided by Director: Service & Support Manager
Call Home	Provided by Director: Service & Support Manager
Updates for Firmware / Device microcode	Provided by Director: Update Manager, and ported from the HMC
HMC Appliance Management	Provided by Director: Console Management (new)
Remote Support (PHYP / IBM i)	Provided by Director: Console Management (new)

Function on IVM	Function on Director / PSM
Management of Power Blades	PSM functionality expanded
Command Line Interface	PSM functionality expanded

Power your planet.

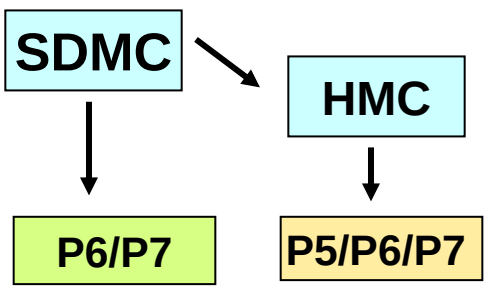
Power Systems Management Scenarios

1) Multiple Power systems



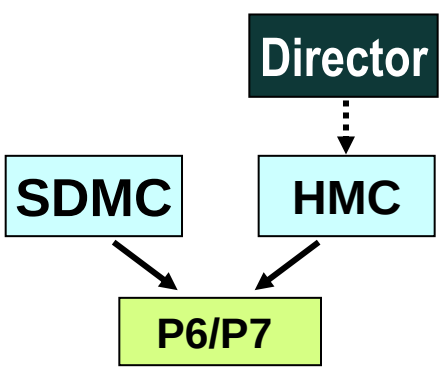
2) Through a HMC

Same SDMC can manage two different Power Systems where one is managed through a HMC



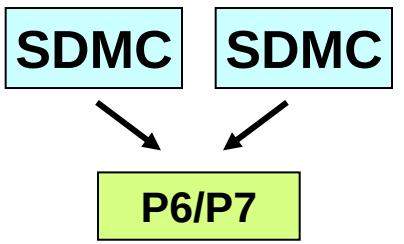
3) HMC and SDMC dual management

HMC and SDMC can manage the same server at the same time



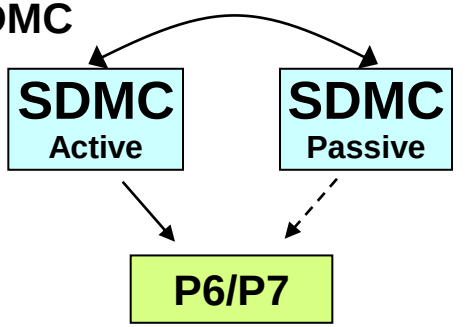
4) Redundant SDMC

Both SDMCs can manage the same server at the same time



5) Active / Passive HA SDMC

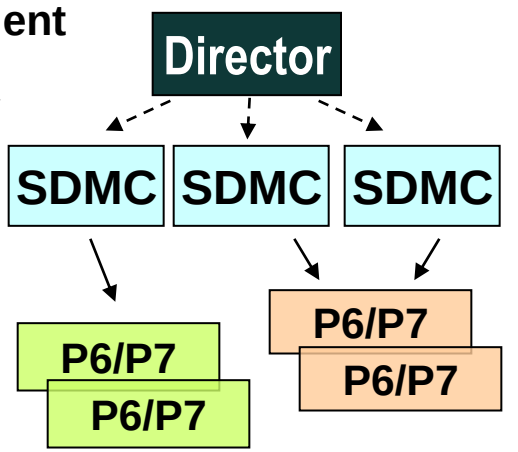
Both SDMCs can manage the same server at the same time



6) Hierarchical Management

Director can hierarchically manage other Director Appliances.

Note: This capability will be staged overtime



Power your planet.

IVM / HMC / SDMC Comparison – General

General Characteristics	IVM	HMC	SDMC
Delivery Vehicle	Integrated into the server	A desktop or rack-mounted appliance	Virtual appliance: Customer provided hardware & hypervisor Physical appliance: A desktop or rack-mounted appliance
Footprint	No overhead beyond VIOS. Runs in 60MB memory / minimal CPU	2-Core x86, 4GB RAM, 1x500GB HD (latest – used to run with less)	4-Core Nahalem x86, 8GB RAM, 2x500GB HD
Installation	Installed with the VIOS (optical or network). Preinstall option available on some systems.	Appliance is preinstalled. Reinstall via optical media or network is supported.	Software appliance: Virtual appliance tooling – apply and go. Relies on third-party / customer tooling. Hardware appliance: Preinstalled.
Servers supported	Blades: JS21 & beyond P5/5+: 560Q Express and below P6/6+: All HV P7: All HV	Blades: None P5/5+: All P6/6+: All P7: All	Blades: P6 & P7 P5/5+: None P6/6+: All P7: All

IVM / HMC / SDMC Comparison – General

General Characteristics	IVM	HMC	SDMC
Multiple system support	One IVM per server	One HMC can manage multiple servers (48 cecs w/ 1000 lpars spread amongst)	SDMC can manage multiple servers (48 cecs w/ 1000 lpars Director can manage additional non-Power server entities (OS's, etc)
User Interface	Web browser (no local graphical display)	Web browser (local or remote)	Web browser (local or remote)
Scripting and Automation	VIOS command line interface (CLI) and HMC compatible CLI	HMC command line interface	Director command line interface (compatible with HMC & IVM)

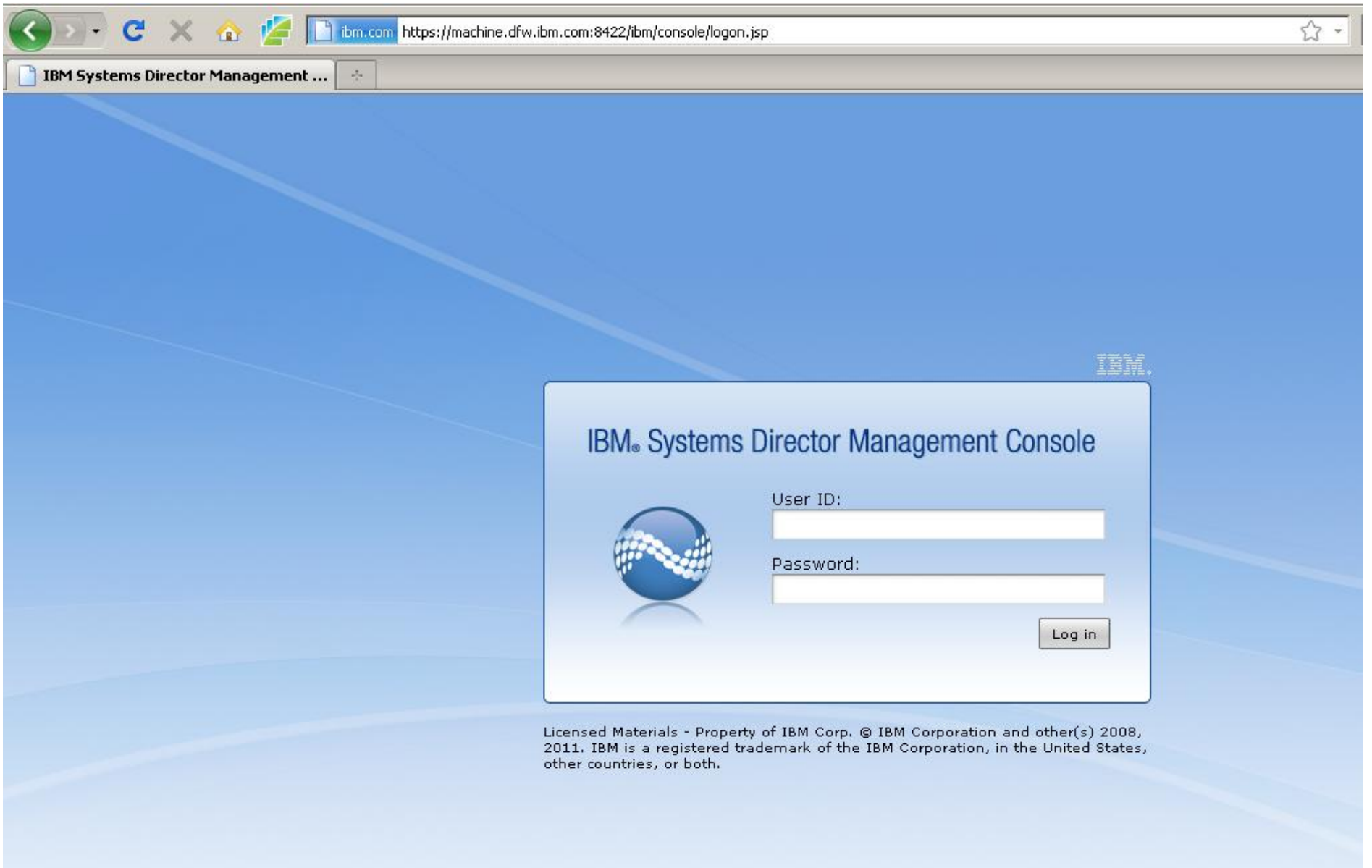
Maximum Systems Supported via SDMC

- SDMC scalability
  - Managed Systems:
    - 48 systems (low-end servers) or 32 systems (high-end servers)
  - Partitions
    - 1K LPARs spread across the managed systems.
- Generally expect a 1 to 1 mapping of SDMC to replace existing HMCs
  - Expect fewer SDMCs should be necessary long term.
- Customer may require multiple SDMCs for the following reasons:
  - Enhanced Blade support
  - Redundancy
  - Network Topology: Especially on high-end systems, the FSPs and BPCs are expected to be on private networks

Transition from HMC to SDMC

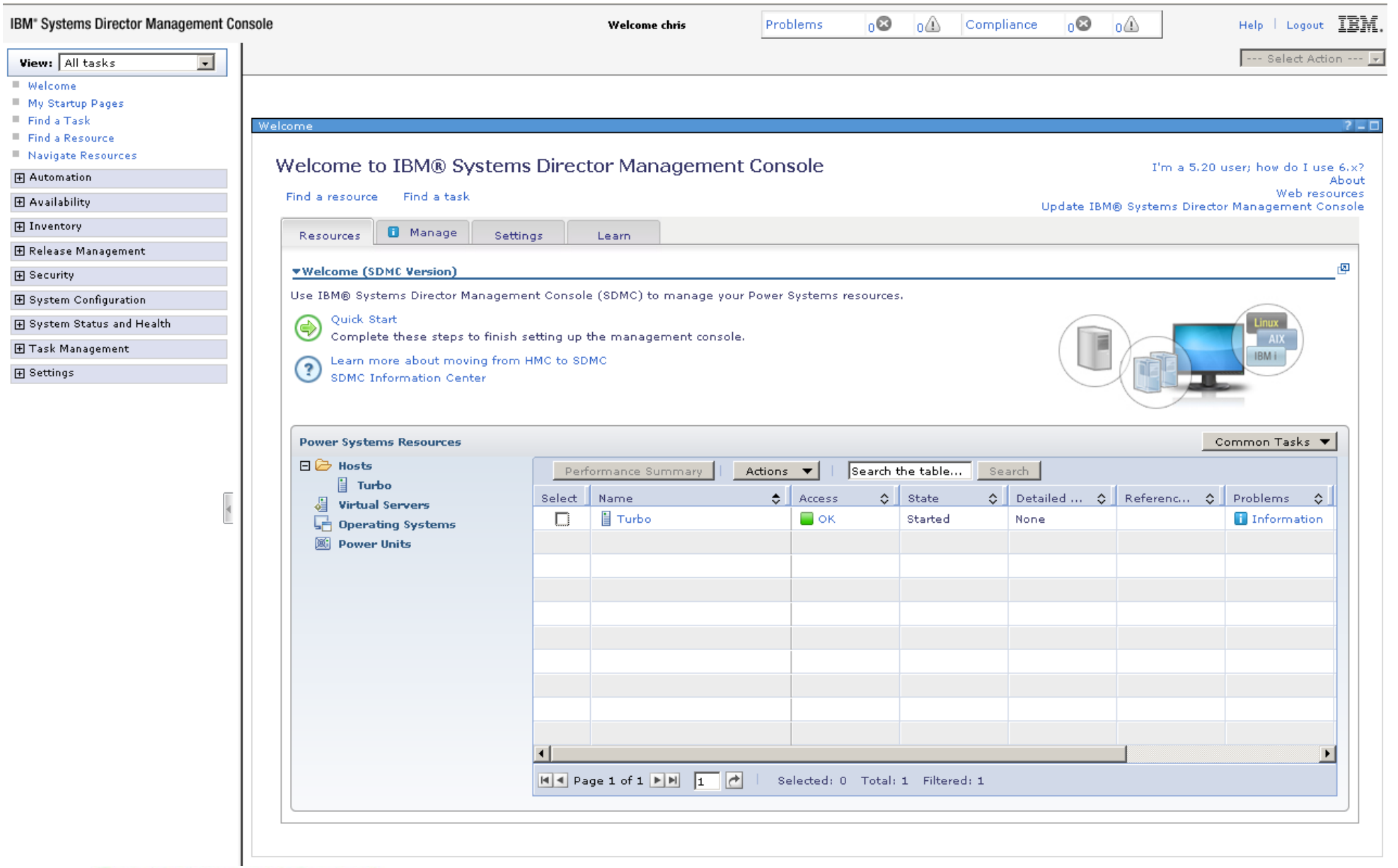
- Side-by-side Management
  - Servers will support 1 HMC + 1 SDMC
    - Some P7 servers may support more than 2 management consoles in the future
  - SDMC & HMC must have common code levels – same requirement as redundant HMCs today (e.g., 730 SDMC would match up with 730 HMC).
- Transition of configuration data
  - All partition/profile related info is stored on the managed system itself.
  - Transition tool to help bring over static IP managed servers
  - Future enhancement for bringing over custom users, groups and roles

Login Screen



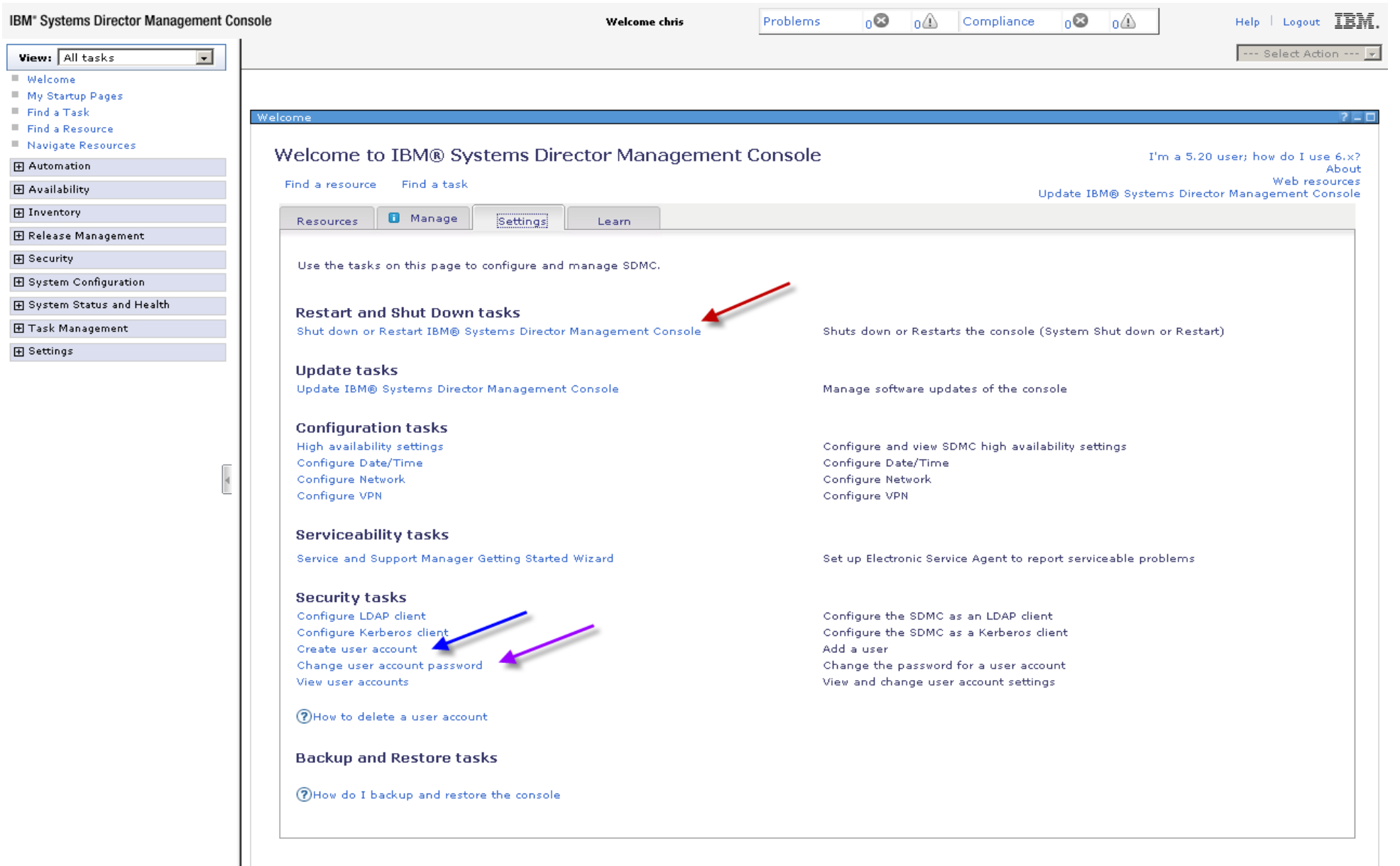
Power your planet.

Welcome Screen



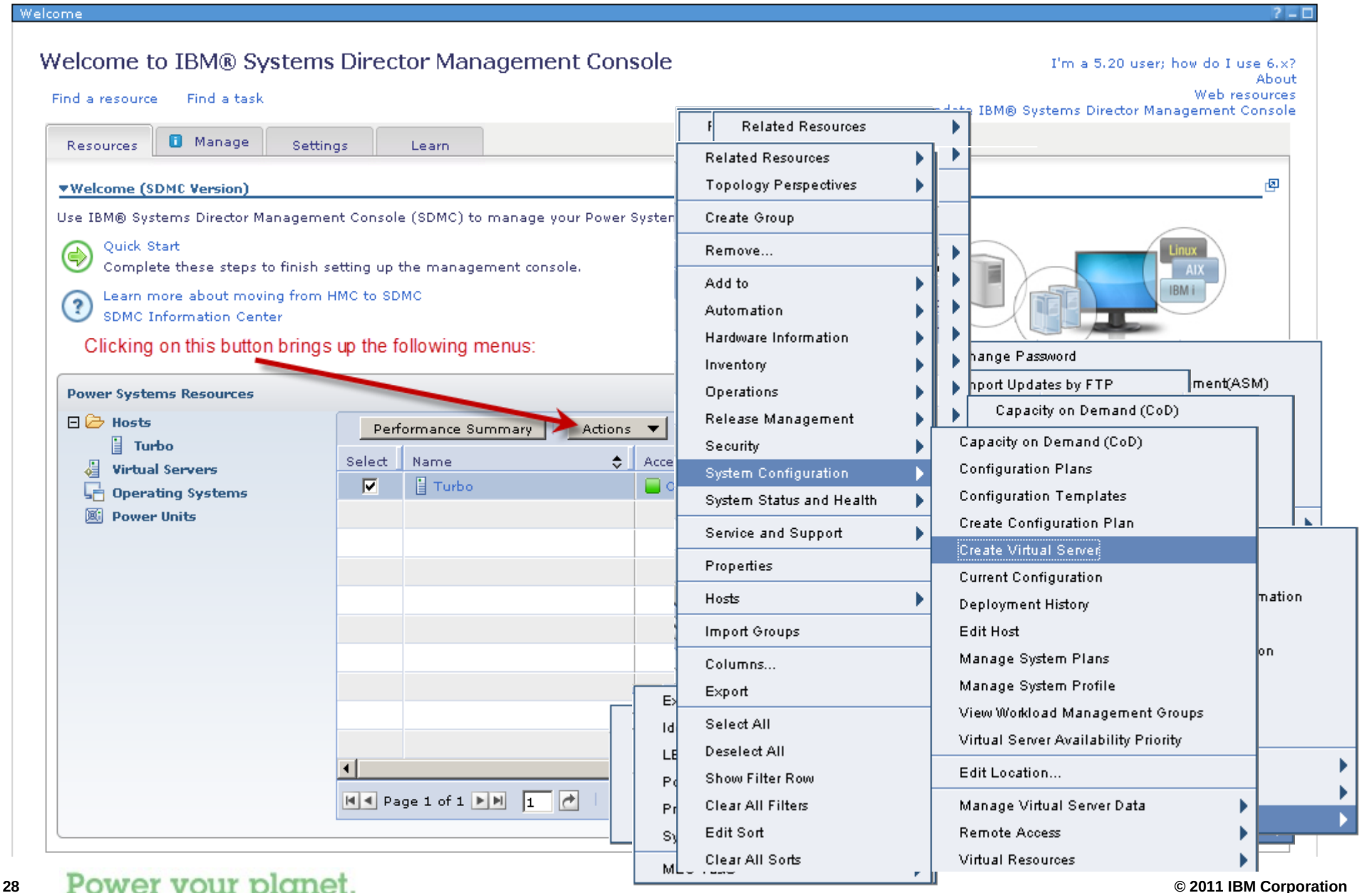
Power your planet.

Settings Tab



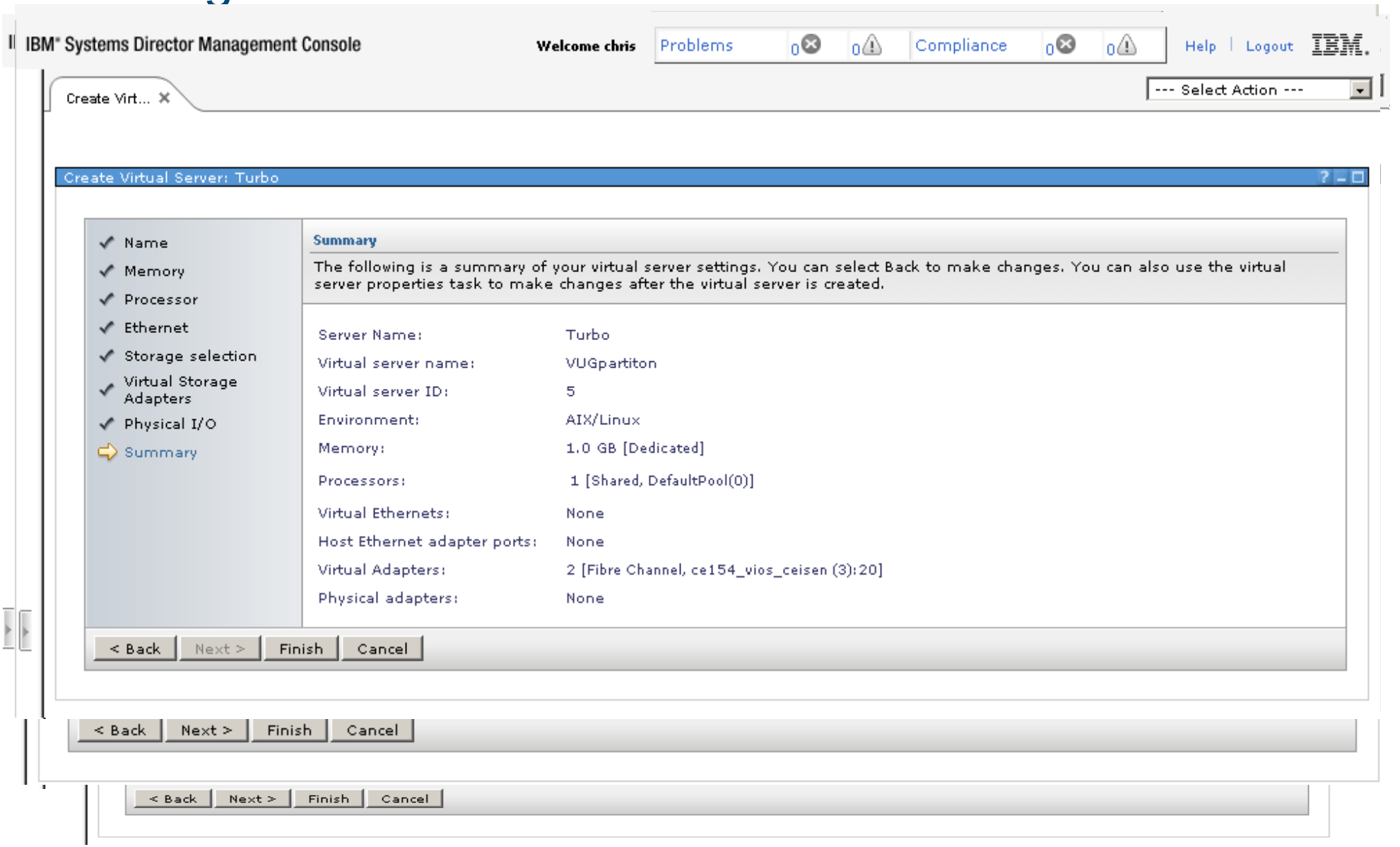
Power your planet.

Action Menus for Hosts



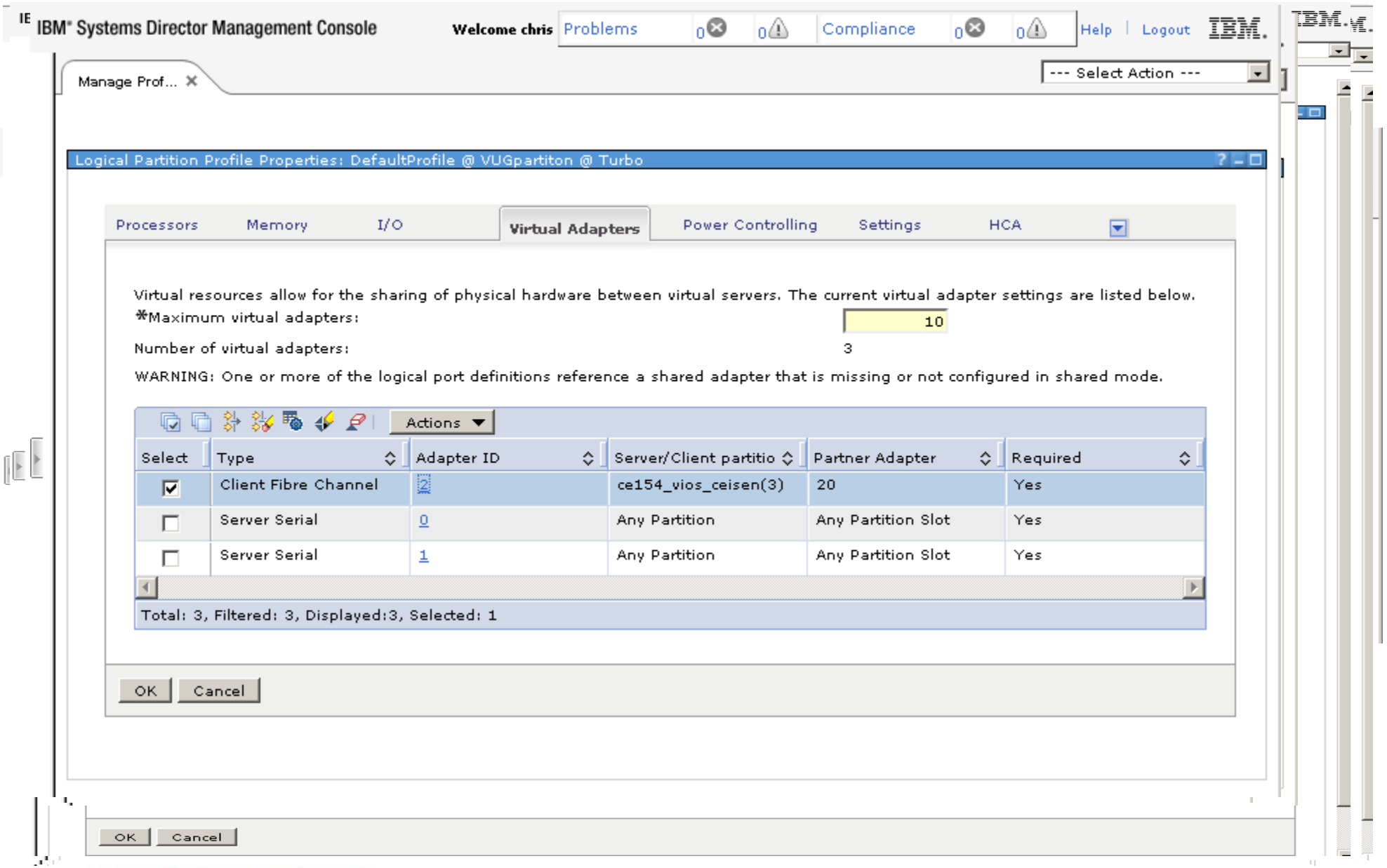
Power your planet.

Creating Virtual Server Wizard



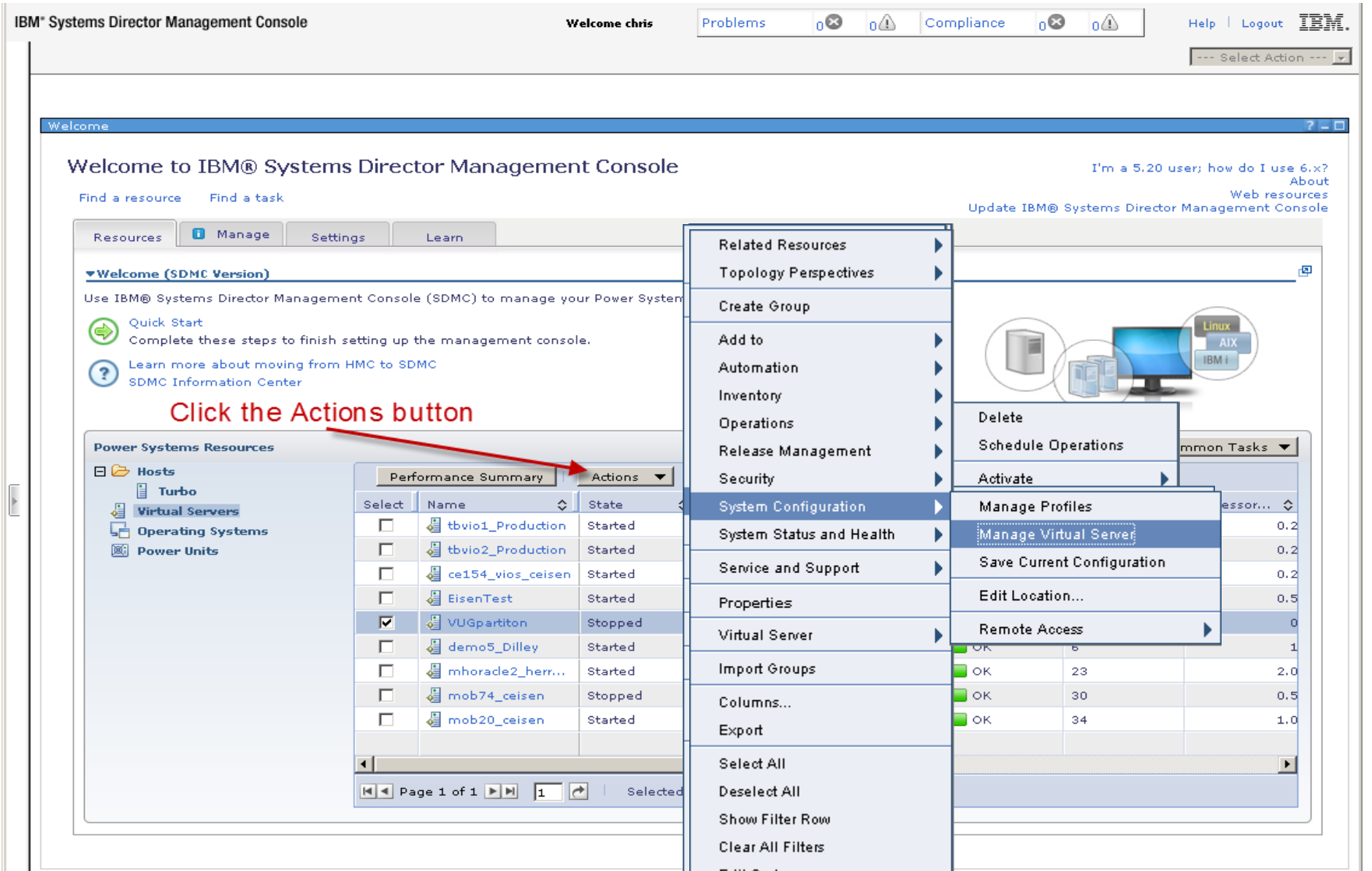
Power your planet.

Review New Virtual Server



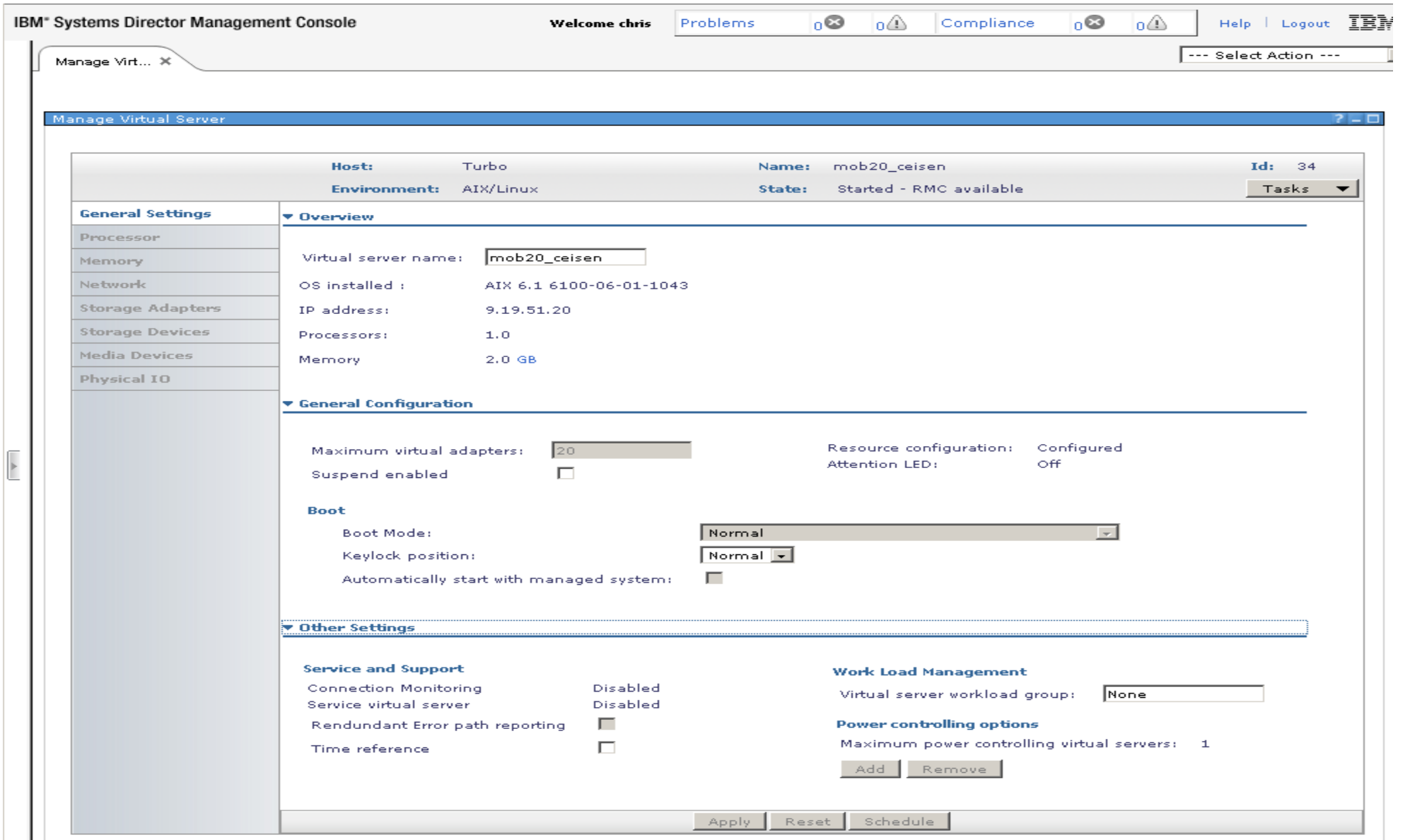
Power your planet.

Action Menus for Virtual Servers



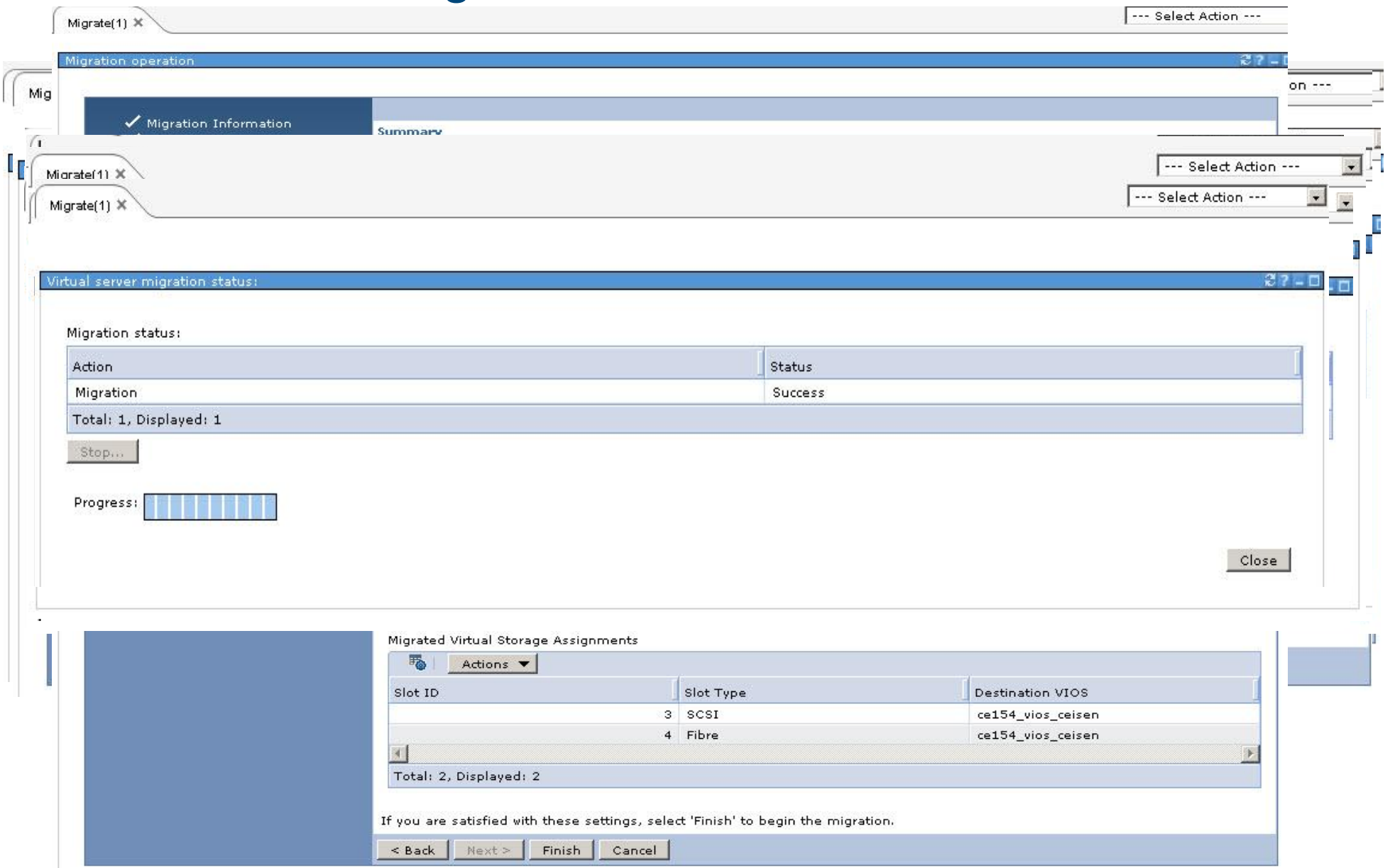
Power your planet.

Manage Virtual Server – DLPAR Function



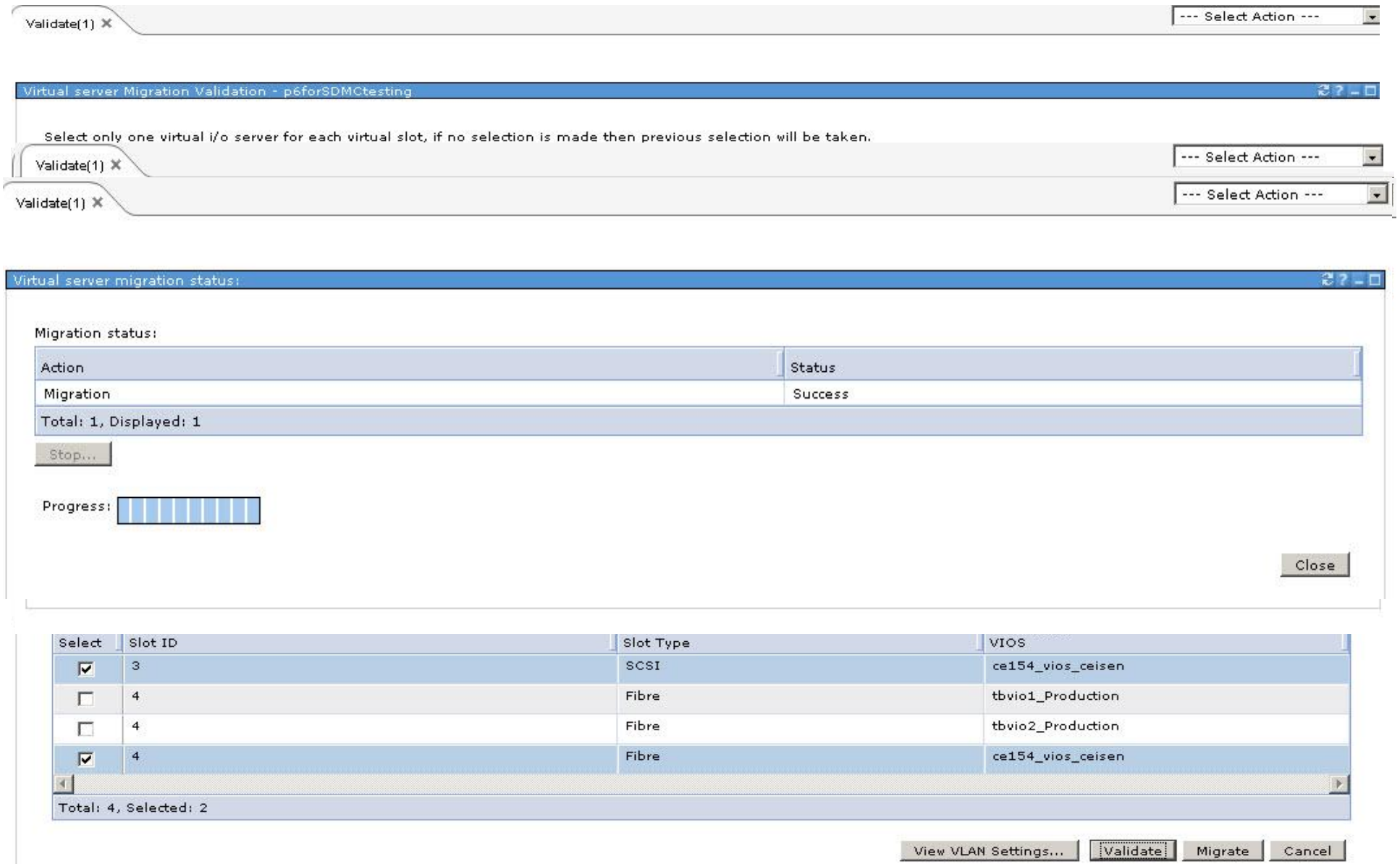
Power your planet.

Relocation via Migration Wizard



Power your planet.

Relocation via Validation Screens



Power your planet.

Questions?

Special notices

This document was developed for IBM offerings in the United States as of the date of publication. IBM may not make these offerings available in other countries, and the information is subject to change without notice. Consult your local IBM business contact for information on the IBM offerings available in your area.

Information in this document concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. Send license inquires, in writing, to IBM Director of Licensing, IBM Corporation, New Castle Drive, Armonk, NY 10504-1785 USA.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The information contained in this document has not been submitted to any formal IBM test and is provided "AS IS" with no warranties or guarantees either expressed or implied.

All examples cited or described in this document are presented as illustrations of the manner in which some IBM products can be used and the results that may be achieved. Actual environmental costs and performance characteristics will vary depending on individual client configurations and conditions.

IBM Global Financing offerings are provided through IBM Credit Corporation in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates are based on a client's credit rating, financing terms, offering type, equipment type and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice.

IBM is not responsible for printing errors in this document that result in pricing or information inaccuracies.

All prices shown are IBM's United States suggested list prices and are subject to change without notice; reseller prices may vary.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

Any performance data contained in this document was determined in a controlled environment. Actual results may vary significantly and are dependent on many factors including system hardware configuration and software design and configuration. Some measurements quoted in this document may have been made on development-level systems. There is no guarantee these measurements will be the same on generally-available systems. Some measurements quoted in this document may have been estimated through extrapolation. Users of this document should verify the applicable data for their specific environment.

Revised September 26, 2006

Power your planet.

Special notices (cont.)

Revised February 9, 2010

Power your planet.