

Reducing Operating Costs by Single Console IT Infrastructure Management Solutions

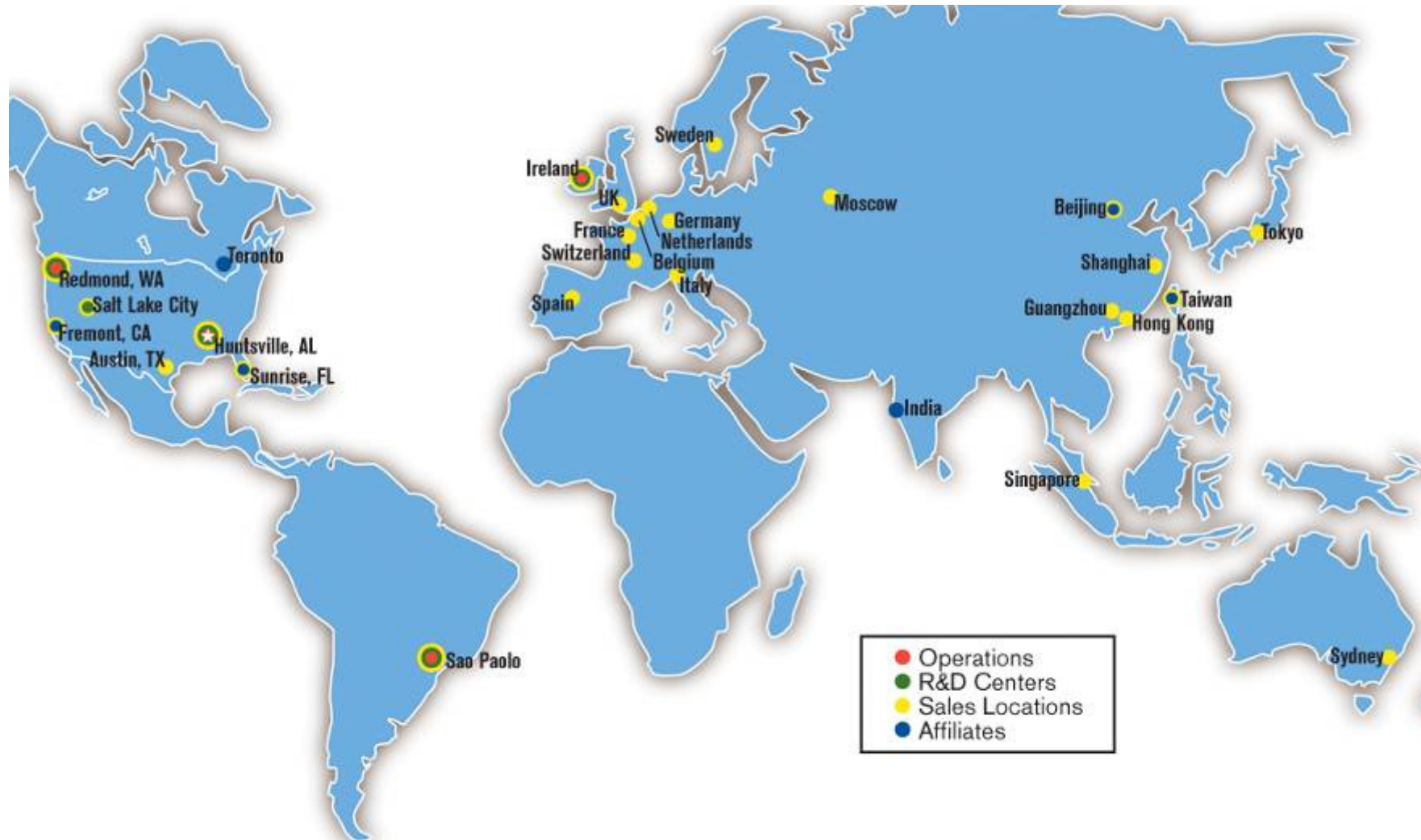
Daniel Yeung
Senior Technical Consultant
Enterprise Solutions

Avocent Snapshot

- Leader in “Always On” IT **infrastructure management solutions** for Enterprises Worldwide
 - Integrated, centralized in-band and out-of-band hardware and software
 - 94% of Fortune 100 ; 85% of Fortune 1000
- \$1.4B Market Capitalization
 - NASDAQ: AVCT
- 2007 Revenue = USD610M+
- 1,850+ Employees
- OEM Supplier of Firmware, Appliances and Software
 - HPQ, Dell, IBM, Intel, APC & FSC
 - Intel, Lenovo, Gateway

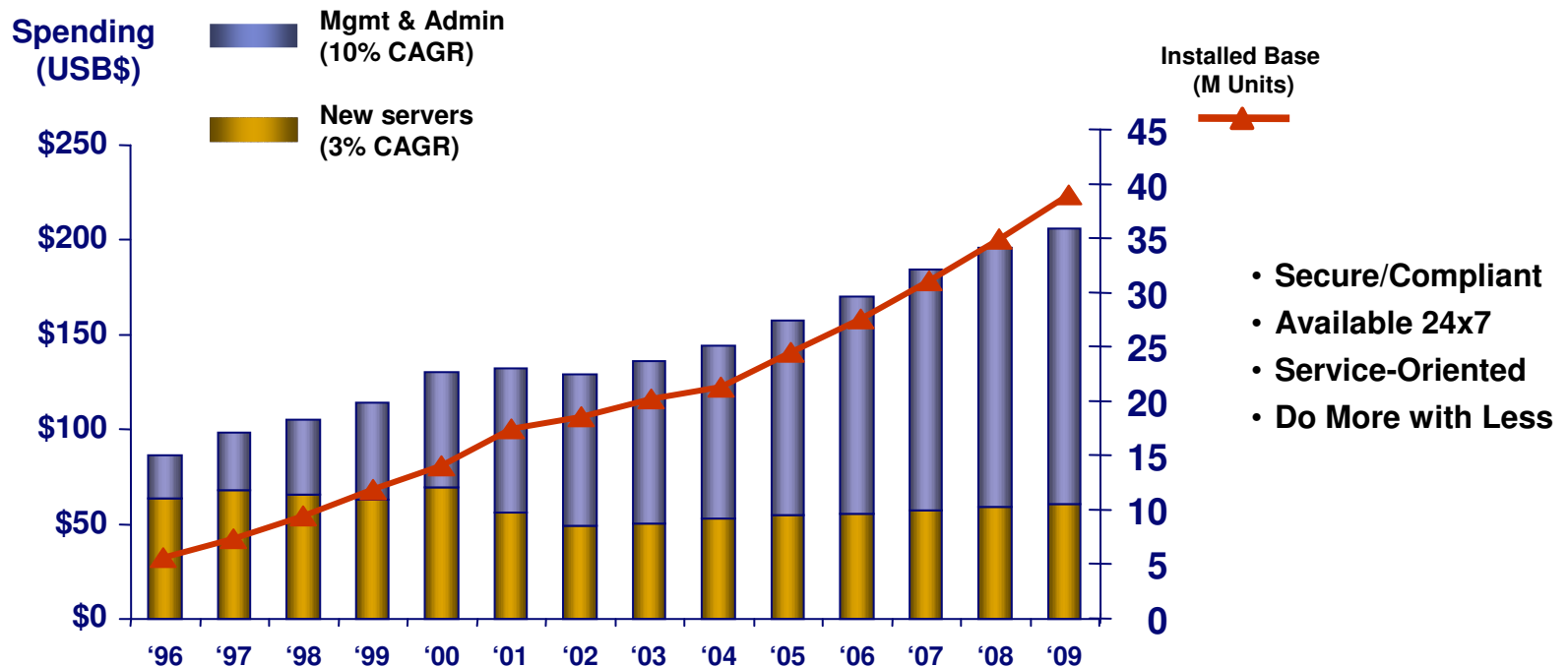


Global Strength & Presence



Worldwide Server Spending, Acquisition and Management, 1996-2009

- 2006 Management Equation : \$1 Capital = \$7 Management
- Controlling Operating cost is a prime concern for IT

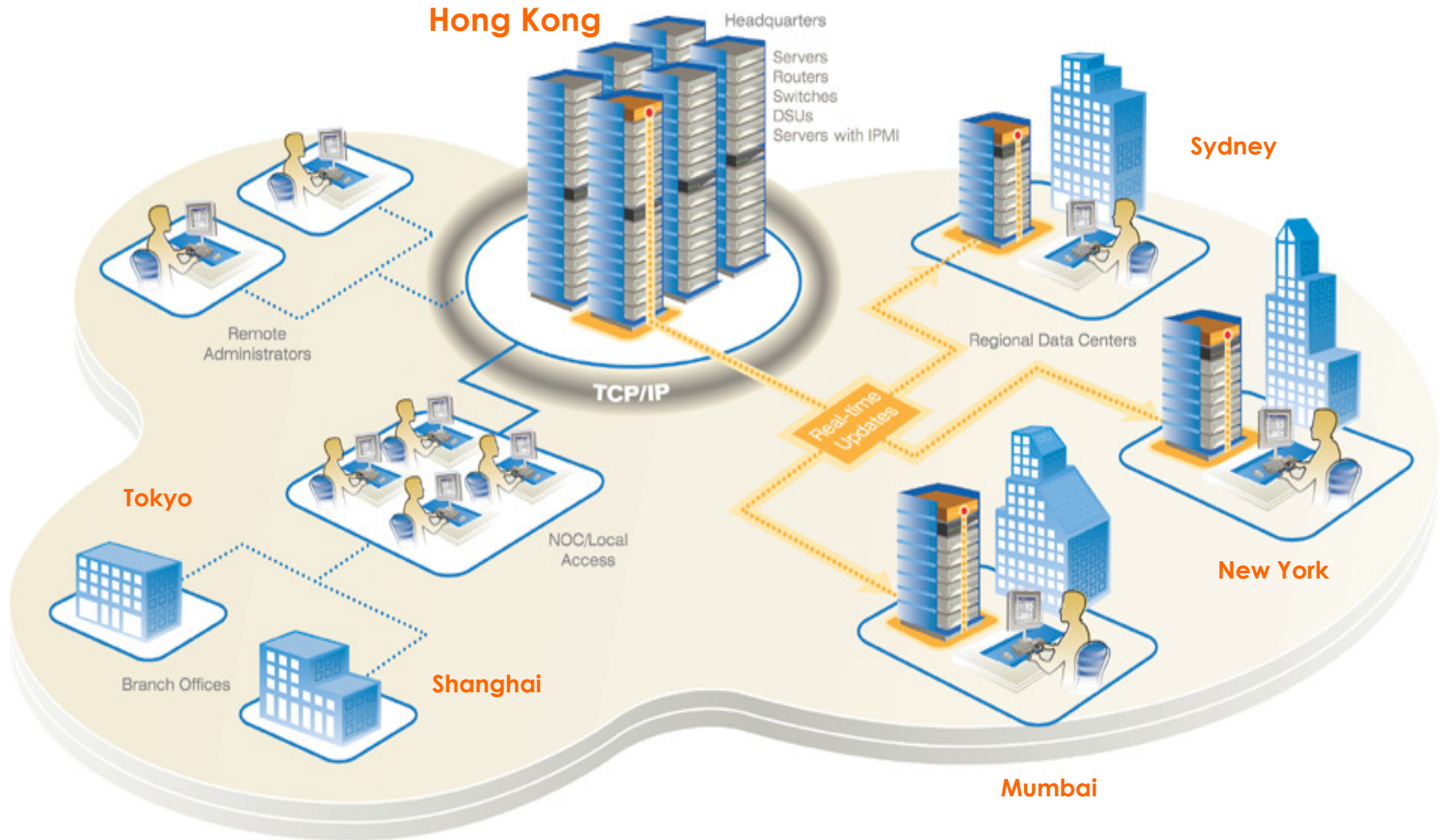


- Secure/Compliant
- Available 24x7
- Service-Oriented
- Do More with Less

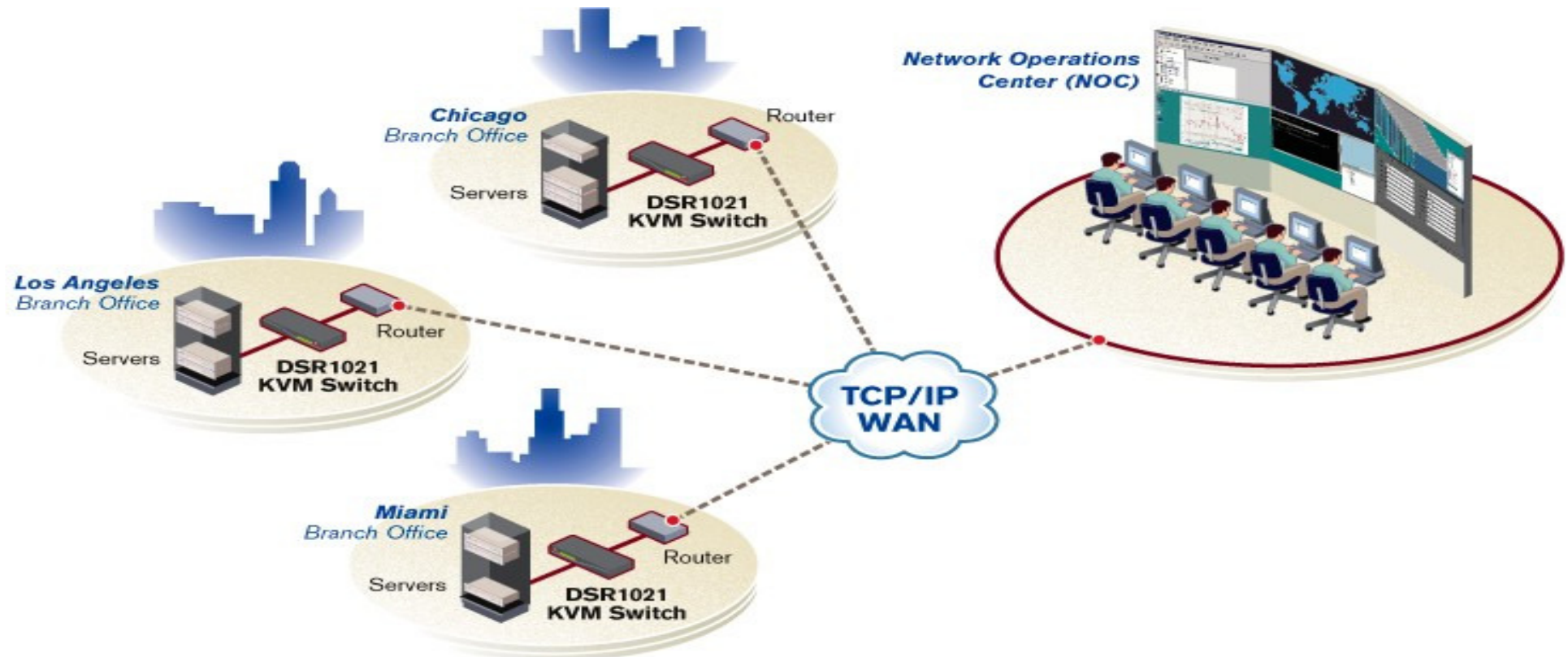
* CAGR: Compound Annual Growth Rate

WW Server Spending
Source: IDC, May 2006

Global Distributed Operations



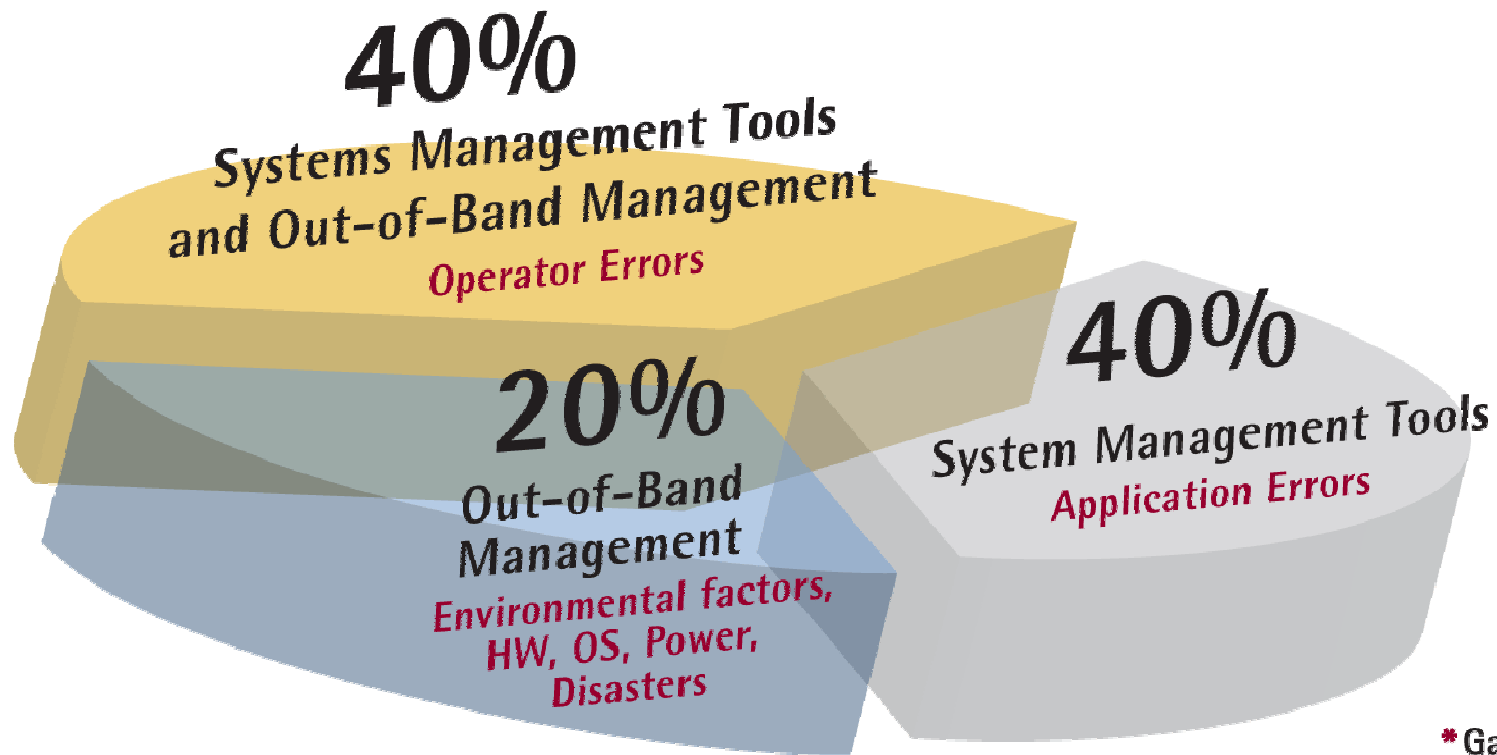
Branch/Remote Office



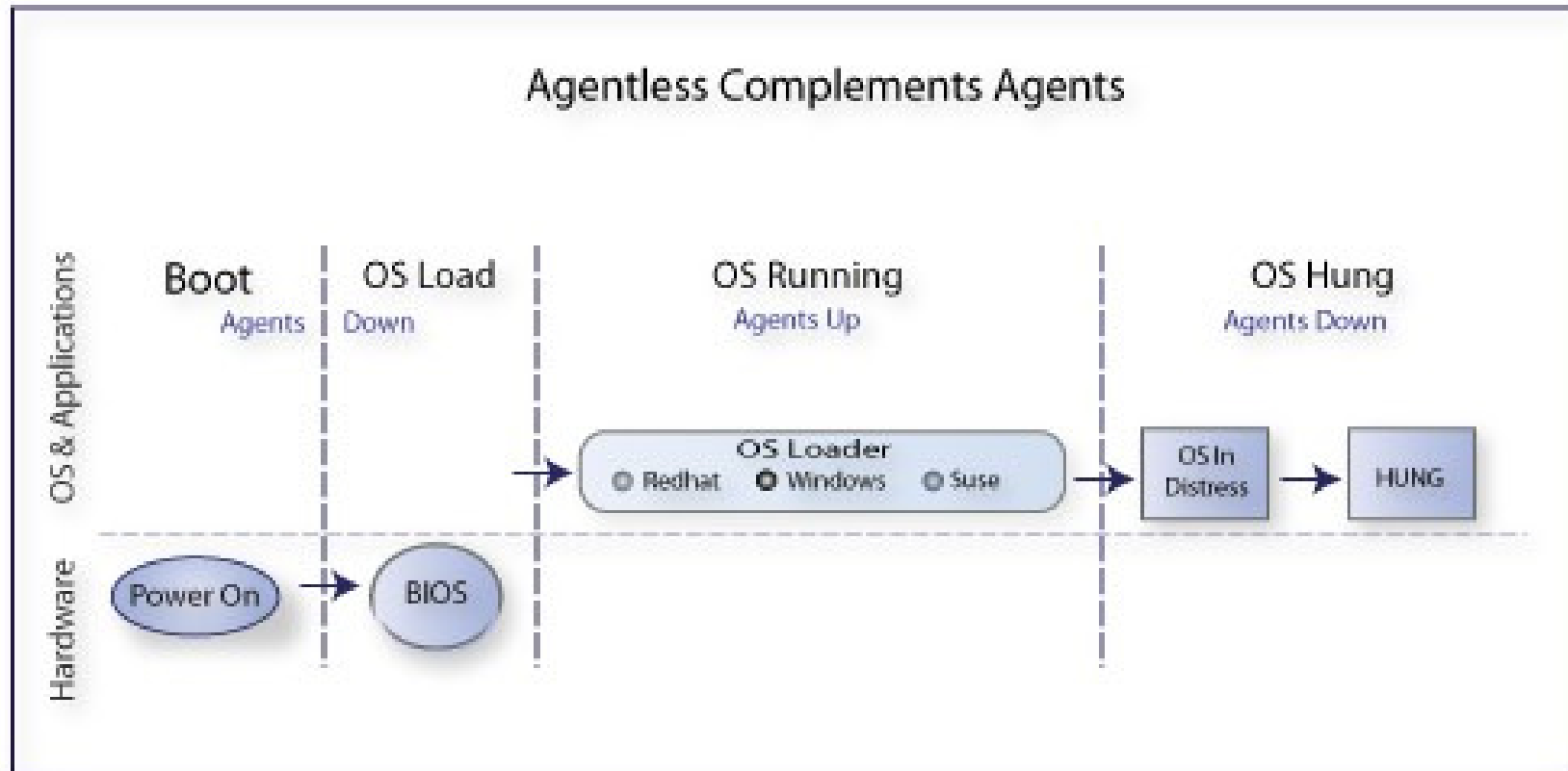
*Number of remote offices sites growing > 10% per year
- Netmertes, 2007*

Service Availability is critical

- Causes for **UNPLANNED** Data Center Downtime



Agentless Management

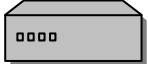

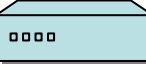
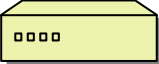



Agentless Management Access through all states

- Ensure access during all system states Pre-OS, OS Boot, OS-Running, OS-Unresponsive and Post-OS
- Fills the gaps left by other software management techniques

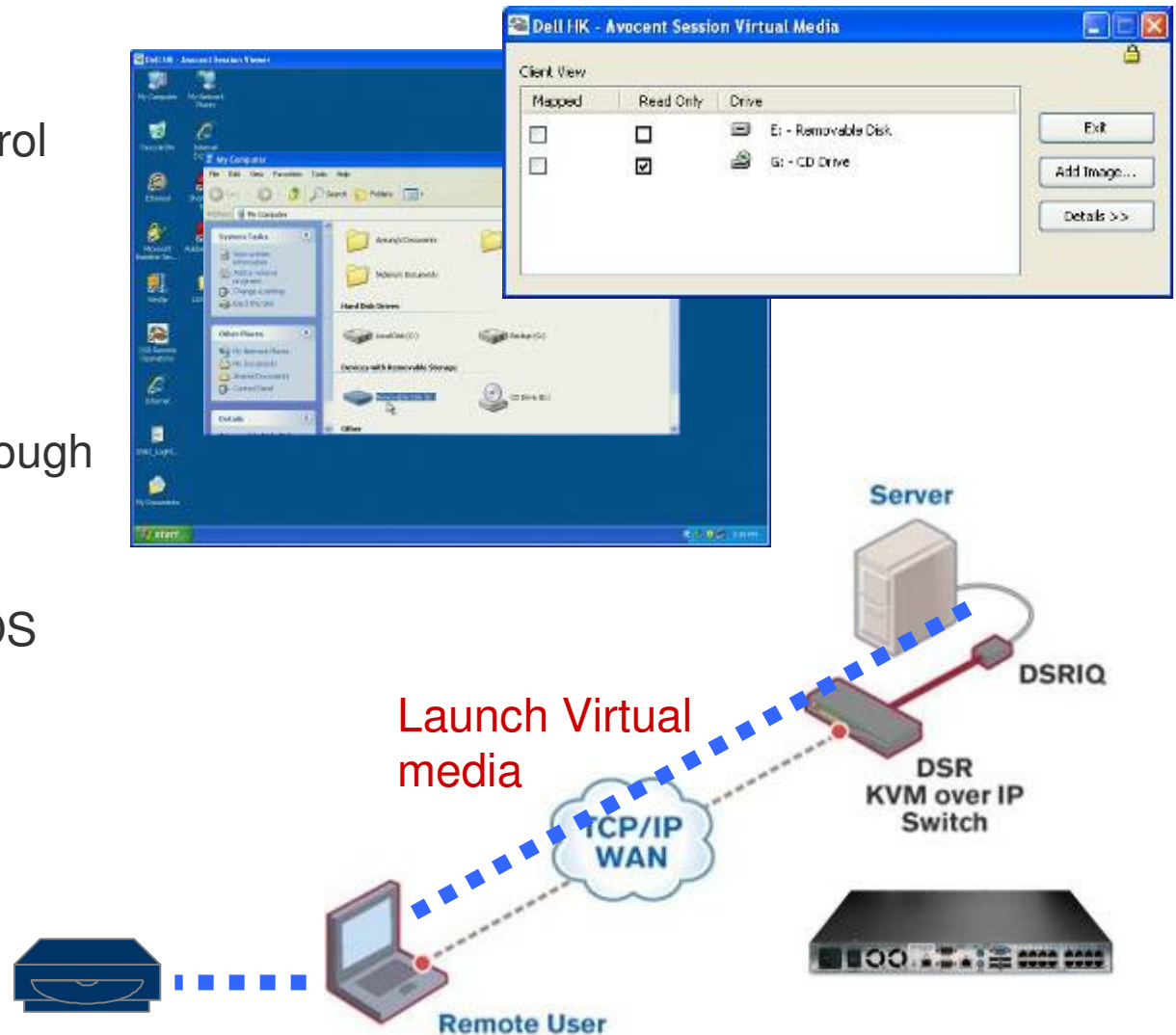
Out of Band (OOB) Management

Your Data Center

	Servers 	Blades 	Networking Appliances 	Storages 	Virtual Machine 
<i>GUI-based OS</i>	KVM over IP	KVM over IP			Virtual Machine Management
<i>Command-based OS</i>	Remote Console Management	Remote Console Management	Remote Console Management	Remote Console Management	Virtual Console Management
<i>Physical Power On/Off/Cycle</i>	Remote Power Management	Remote Power Management	Remote Power Management	Remote Power Management	Virtual Power Management
<i>IPMI, iLO, RSA, DRAC, iLOM/ALOM, iRMC</i>	Service Processor Management	Service Processor Management			

Remote Server Management – KVM over IP

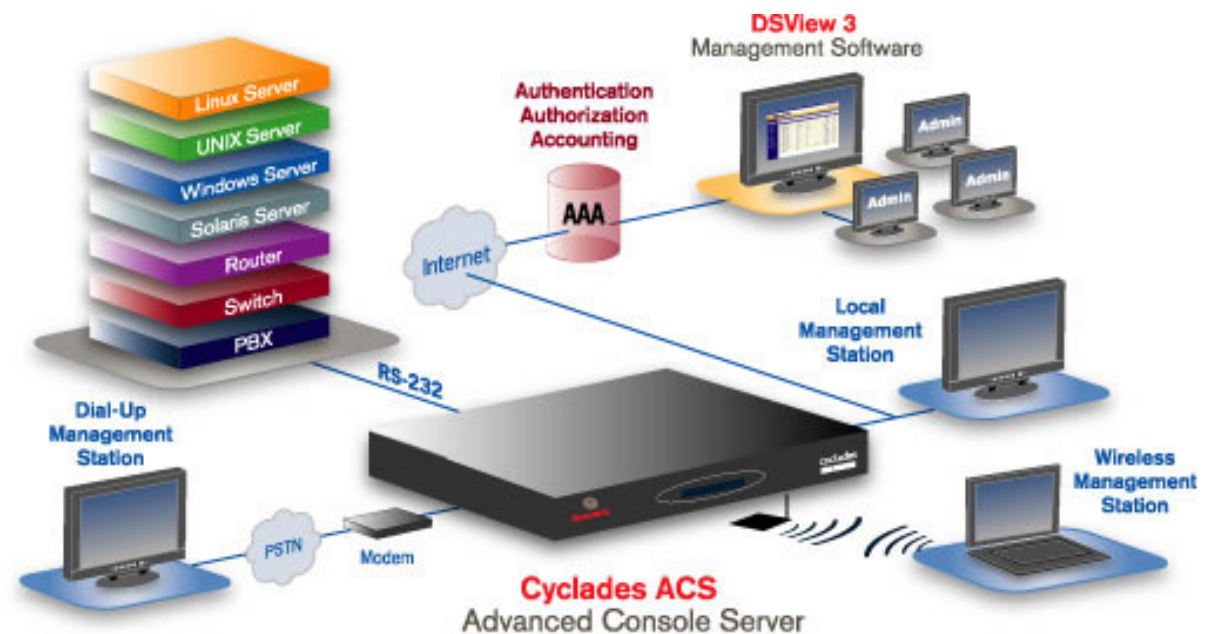
- **Avocent DSR appliance**
 - Remote Access & Control
 - Support multi-platform servers
 - Integrated server and power management
 - Managed directly or through DSView 3 software
 - Execute remote file transfers, application, OS patches, or diagnostic testing from a CD/USB device



Remote Serial Console Management

- **Cyclades ACS6000 – Advanced Console Server**

- Low Level Access to System Information *BIOS*
- Powerful CLI & wiz commands
- Strong server-based authentication
- Integrated server and power management
- Data logging capability
- Out of band support



Enhanced Security AAA – Authentication, Authorization, Accountability

Intelligent Power Distribution Management

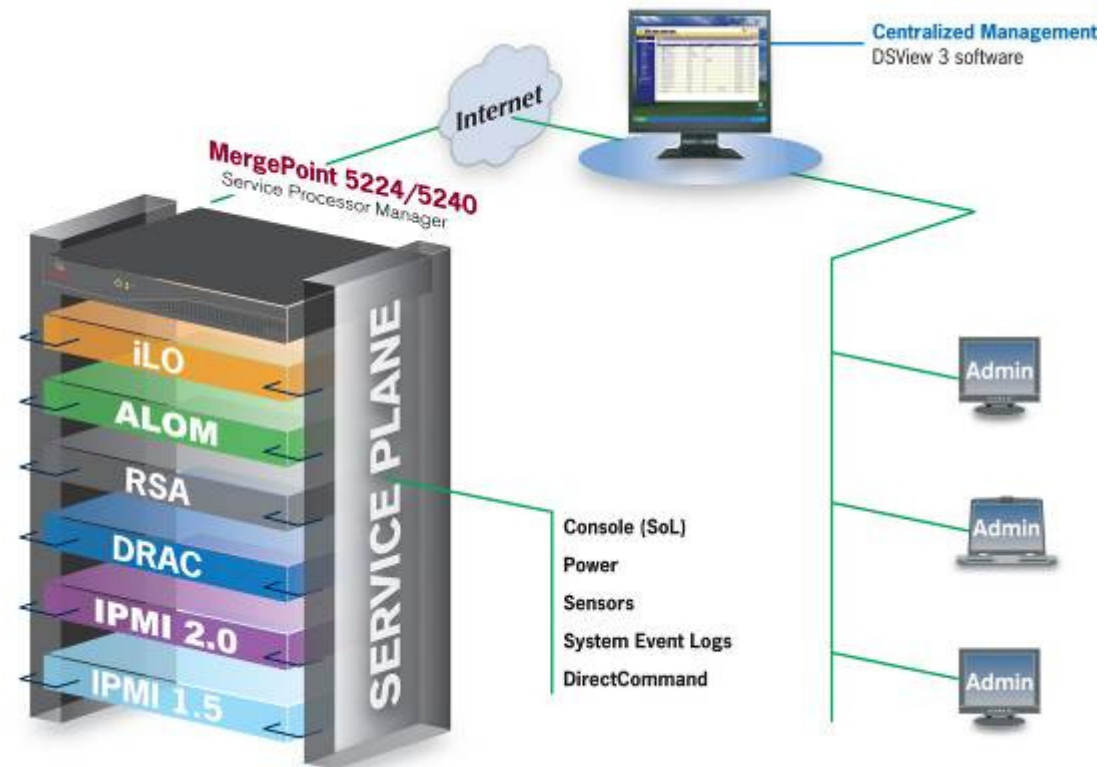
- **Cyclades PM – Power Distribution Unit**
 - Independent control (power on/off/cycle)
 - Monitor current utilization
 - Events notification (SMTP e-mail/SNMP trap)
 - Inheritance of console security
 - User access list per power port
 - Integrated console & power management in single session



Remote Service Processor Management

- **MergePoint 52xx family**

- Console (SoL), Power, Health monitoring with data logging, in a single solution
- Leverage infrastructure already deployed
- Fast & secure SP deployment
- Access with Data logging capability
- Ethernet port & IP address savings
- Consolidated server management for your entire infrastructure



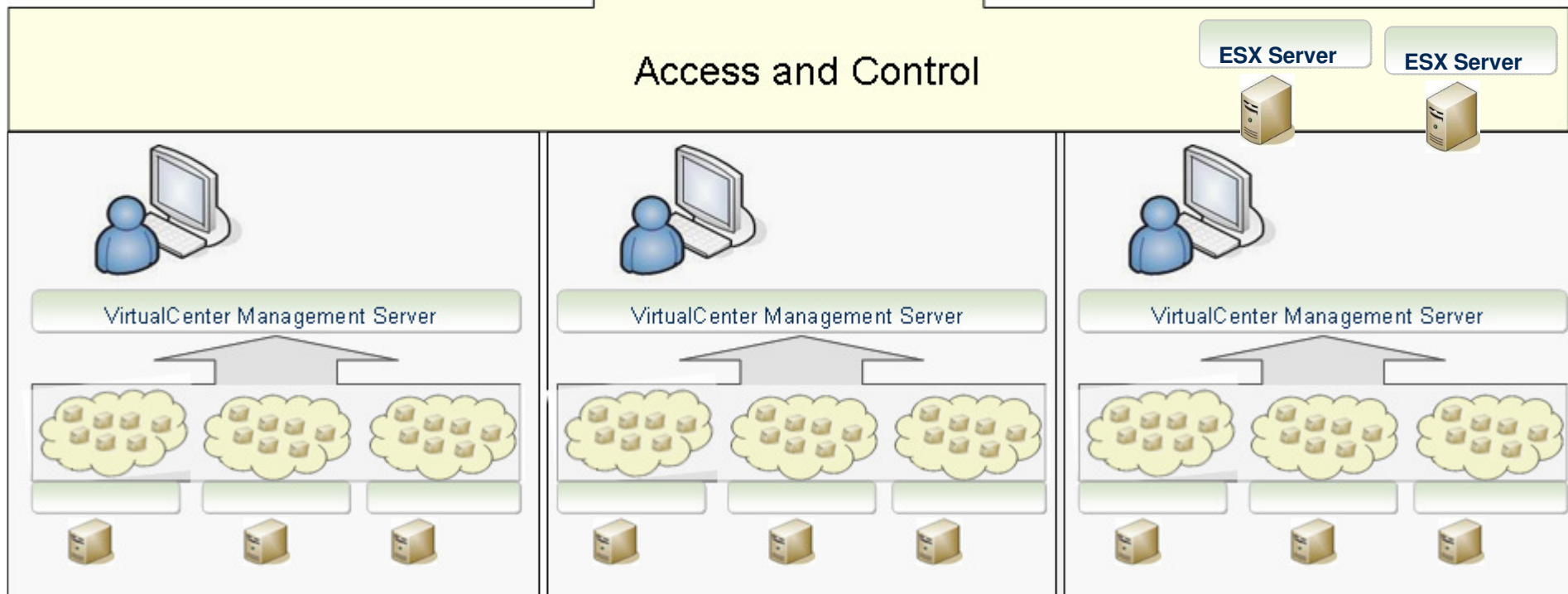
Virtualization Management

- **Access and Control VMware Virtual Center 2.0.1+ / ESX Server 3.0.1+**

- Control virtual machines via VMware viewer, serial console and Power in a single solution



- Review VM resources and status
- Consolidate VC / ESX logs into DSView 3



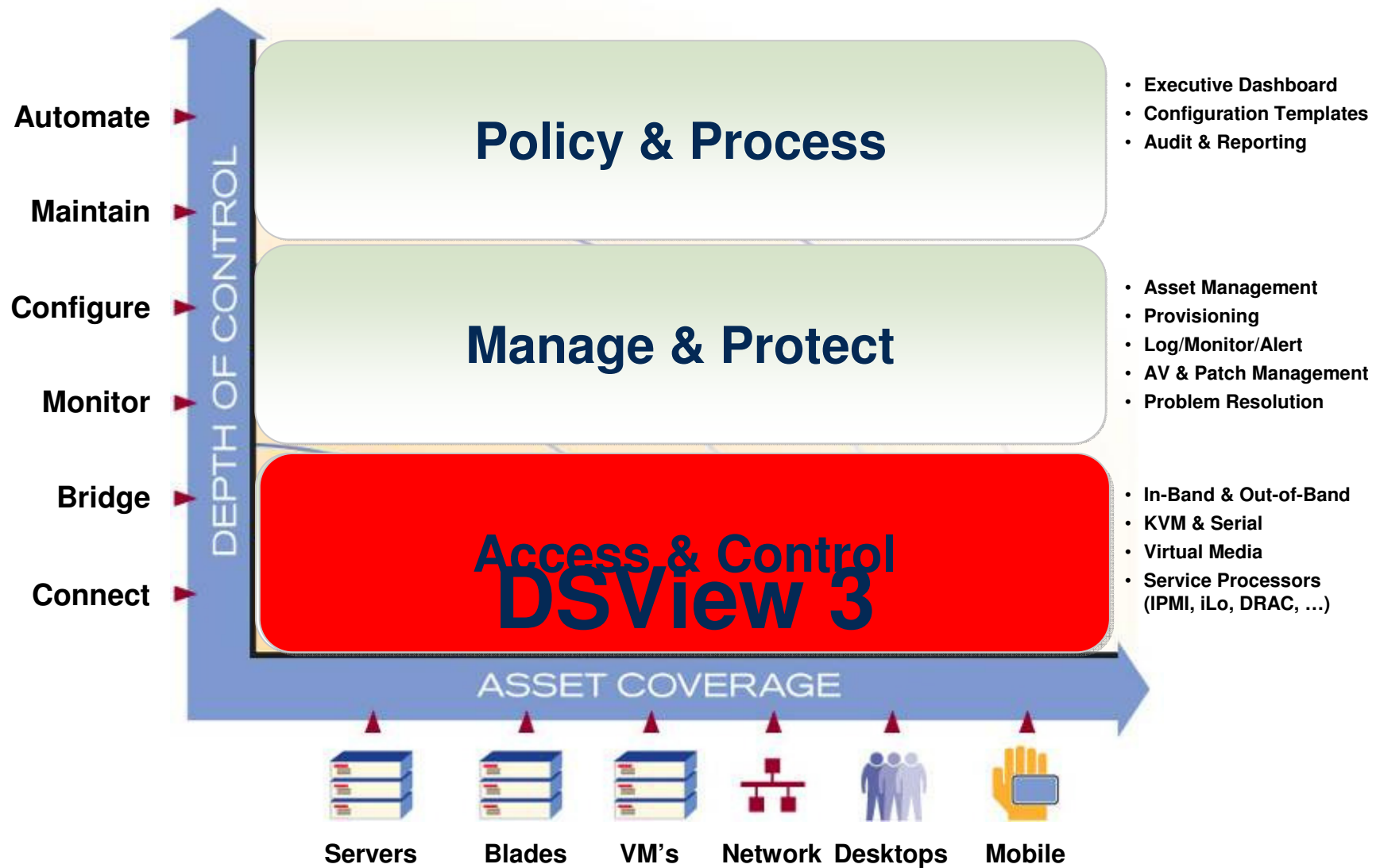
Consolidation

Avocent – Core Value

Avocent IT Infrastructure Management:

- *Reduce operating costs*
- *Simplify management*
- *Increase availability of critical IT environments 24/7*

Avocent Solution Strategy





- Go Green With Avocent**
- DS View® 3 Software Management = Secure Centralized Single Console Access
 - Service Processor Management = Enhanced Overview of Manageability
 - Serial and Console Management = Multiple Accessibility
 - KVM over IP Switching = Enable Lights Out
 - Power Management = Power Efficiency

Blade servers and enclosures

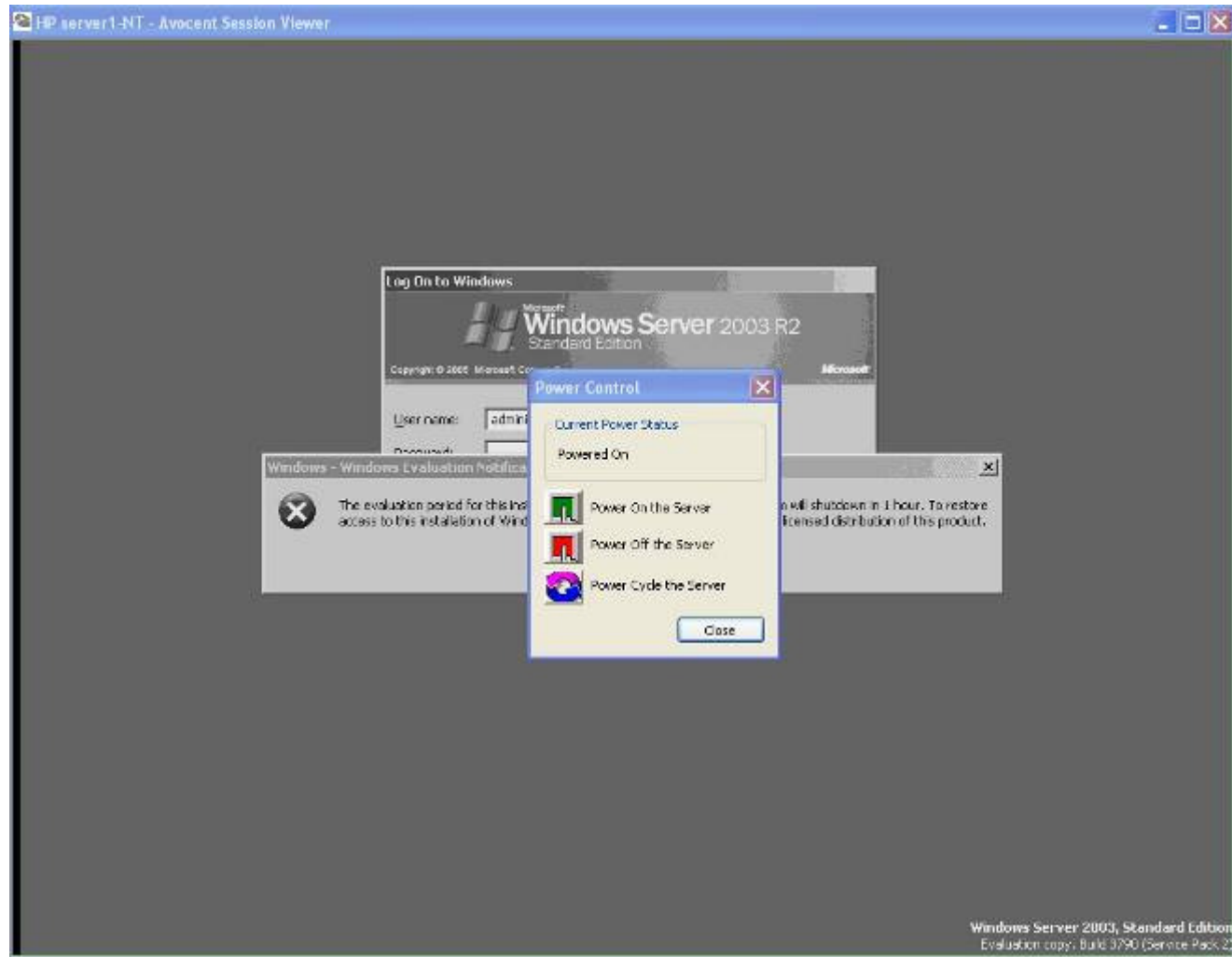
Single, Secure, Browser-based Interface

Virtual Centers, ESX Servers and Virtual Machines Management



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Physical Power Consolidation



Blade Consolidation

Welcome **admin!** BOOKMARK REFRESH PRINT LOGOUT HELP

Avocent DSView 3 Avocent

Units | Users | System | Reports | Profile

Units | Groups | Sites | Departments | Locations | Partners | Profiles 806

Unit Views

- Appliances
- Blade Chassis
 - All
 - DELL
 - IBM
 - HP
 - Active Sessions
 - Active Modem Sessions
 - Custom Field Labels
 - Tools
 - Operation Results

Blade Chassis - All Customize

Page 1 of 1 Navigation icons Filter

Add **Delete** **Scan** **Rights** **Topology** **Operations**

<input type="checkbox"/>	Name	Port	Type	Action
<input type="checkbox"/>	▶ DELL Chassis 1		Dell PowerEdge 1855	
<input type="checkbox"/>	▼ IBM Chassis 1		IBM BladeCenter H	
<input type="checkbox"/>	IBM Chassis 1 - Blade 1	1		KVM Session
<input type="checkbox"/>	IBM Chassis 1 - Blade 2	2		KVM Session
<input type="checkbox"/>	IBM Chassis 1 - Blade 3	3		KVM Session
<input type="checkbox"/>	IBM Chassis 1 - Blade 4	4		KVM Session
<input type="checkbox"/>	▶ DELL Chassis 2		Dell PowerEdge 1955	
<input type="checkbox"/>	▶ DELL Chassis 3		Dell PowerEdge 1955	
<input type="checkbox"/>	▶ Generic Chassis 1		Generic 1x8	
<input type="checkbox"/>	▶ DELL Chassis 4		Dell PowerEdge 1955	
<input type="checkbox"/>	▶ HP Chassis 1		HP BladeSystem c-Class	
<input type="checkbox"/>	▼ HP Chassis 2		HP BladeSystem p-Class	
<input type="checkbox"/>	HP Chassis 2 - Blade 7	7		KVM Session
<input type="checkbox"/>	HP Chassis 2 - Blade 11	11		KVM Session

- **HP BladeSystem p-class / c-class**
- **IBM BladeCenter T / H / HT**
- **Dell PowerEdge 1855 / 1955**



VMware Consolidation

www.zeallsoft.com
 Welcome AVOCENT\Cingerson! BOOKMARK REFRESH PRINT LOGOUT HELP

Avocent DSView 3

Units Users System Reports Profile

Units | Groups | Sites | Departments | Locations | Partners | Profiles 5 729

- Unit Views
 - Appliances
 - Target Devices
 - Blade Chassis
 - Virtualization
 - All
 - VMware ESX Server
 - VMware VirtualCenter
 - Groups
 - Test Configuration
 - Recently Accessed
 - Unit Status
 - Active Sessions
 - Active Modem Sessions
 - Custom Field Labels
 - Tools
 - Operation Results

Virtualization - All Customize

Page 1 of 1 Filter

Add Delete Rights Topology Operations

Welcome admin! BOOKMARK REFRESH PRINT LOGOUT HELP

Avocent DSView 3

Units Users System Reports Profile

Units | Groups | Sites | Departments | Locations | Partners | Profiles 2

- Unit Views
 - Appliances
 - All
 - Virtualization
 - Virtual Centers
 - ESXs
 - Virtual Machines
 - Target Devices
 - Groups
 - Recently Accessed
 - Active Sessions
 - Active Modem Sessions
 - Custom Field Labels
 - Tools
 - Operation Results

ESX Servers Customize

Page 1 of 1 Filter

Add Delete Scan Rights Topology Operations

Name	Port A	Type	Status	Action	Site
ESX Server 1		ESX Server		VI Web Interface	
Virtual Machine A		WIN2KAS	Started	VMWare Console	
Virtual Machine B		WIN2KAS	Started	VMWare Console	
Virtual Machine C		WIN2KAS	Started	VMWare Console	
Virtual Machine D		RedHat Linux	Stopped	VMWare Console	
Virtual Machine E		WIN2KAS	Started	VMWare Console	
ESX Server 2		ESX Server		VI Web Interface	
Virtual Machine F		WIN2KAS	Started	VMWare Console	
Virtual Machine G		WIN2KAS	Started	VMWare Console	

Service Processor Consolidation

- Remote Power Control
- Serial over LAN
- Health Monitoring
- Virtual KVM
- Virtual Media

Unit Overview - Dell1950-DRAC5

Target Device

Name: Dell1950-DRAC5

Type:

Icon:

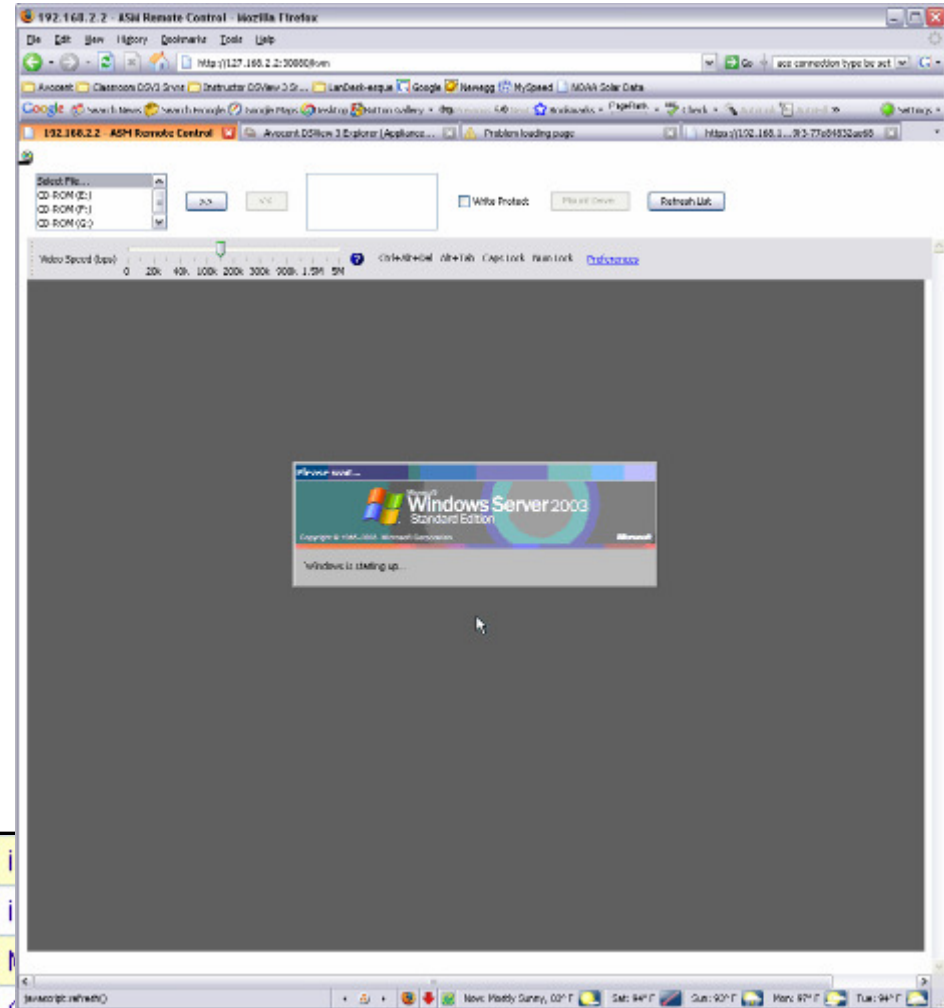
Tools

Merge Target Devices Power On Power Off

Power Cycle Power Status Sensors Clear Event Log FRU Information SoL Configuration Native IP Disable SoL Session DirectCommand Stat

iLO2-192.168.1.85	vport-system9				
iLO1-192.168.1.232	vport-system12				
MergePoint 5224 01-9F-06					
ONS441 02-49-16					
TS1000 00-3C-36	TS1000	Idle			
z-DSR2020Cubes	DSR2020	Idle			

Browser Session
KVM Session
 vMedia Session

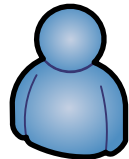


Collaborative Platform

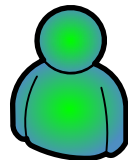
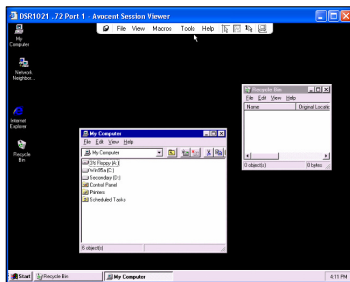
- **Sharing (Active / Passive)**

- Collaborative work between multiple parties such as:
 - Teammates
 - Onsite workers
 - 3rd party vendors

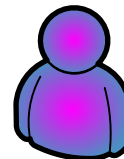
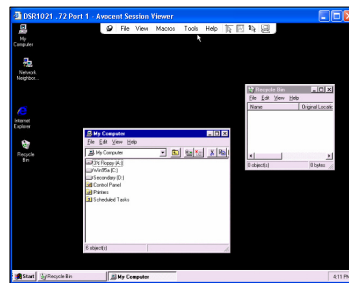
Remote Server



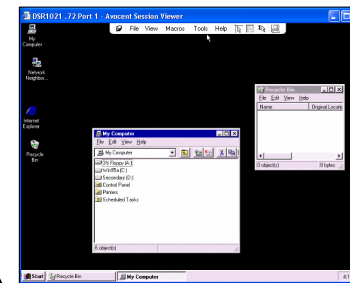
1st KVM Session



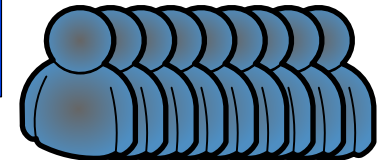
2nd KVM Session
Active Sharing with
full KVM control



3rd KVM Session
Passive Sharing
with Video only



Up to 12th KVM
Session*
Active / Passive
Sharing



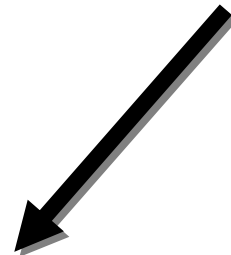
* max. 12 current KVM
sessions from the same
DSR appliance

Collaborative Platform

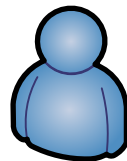
- **Stealth**

- Silent Monitoring for KVM activity of:
 - End users
 - Subordinates
 - 3rd party vendors

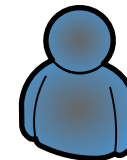
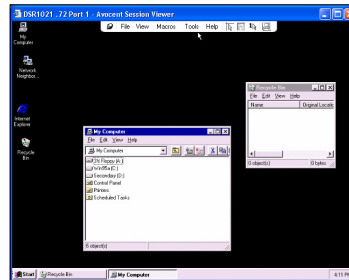
Remote Server



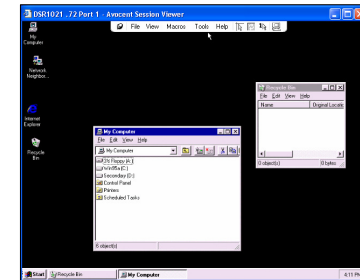
**Silent
Monitoring**



User

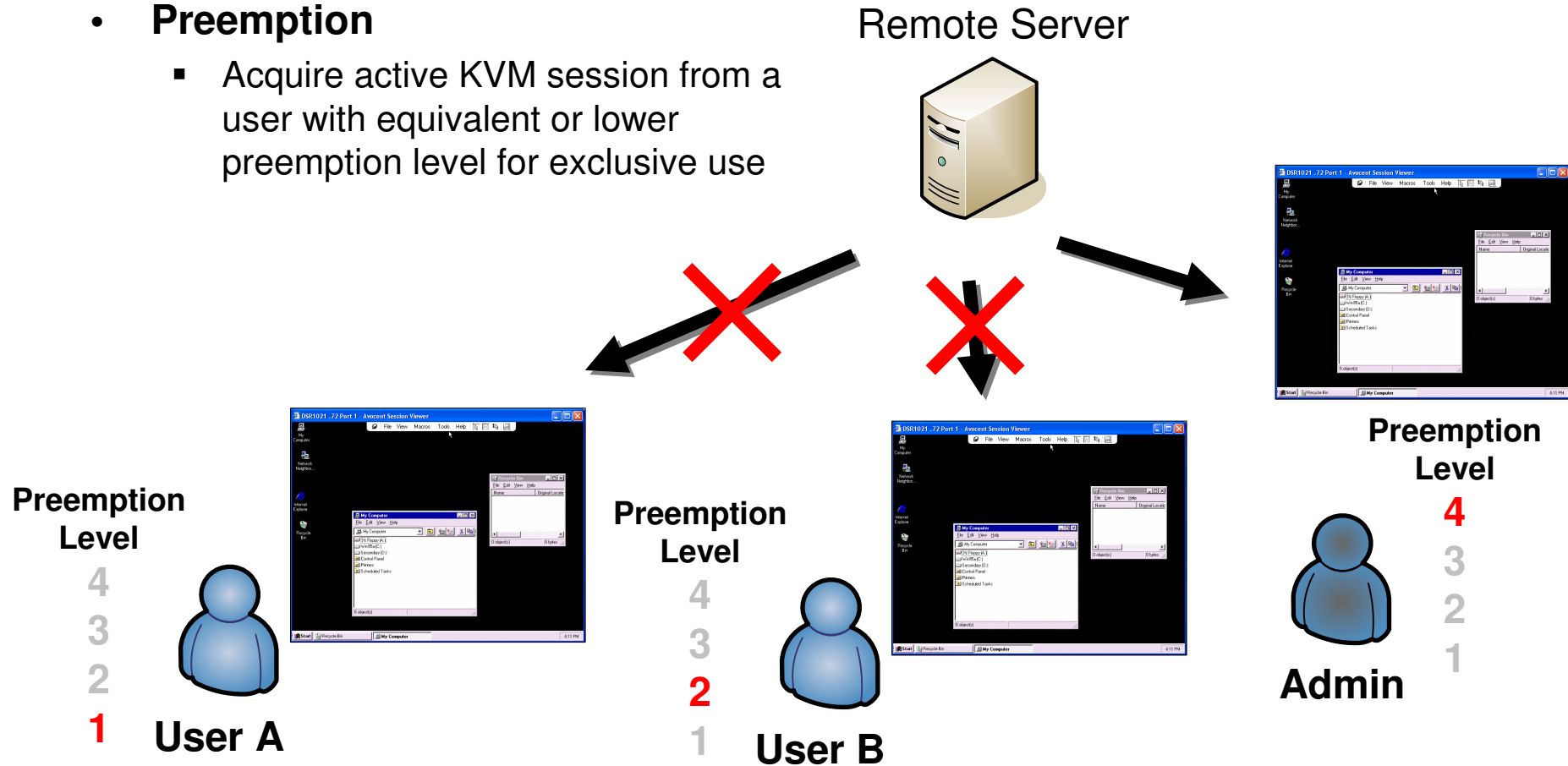


Admin



Collaborative Platform

- **Preemption**
 - Acquire active KVM session from a user with equivalent or lower preemption level for exclusive use



ACS appliance can also enable Read/Write, Sniff and Canceling Session operation on Remote Console Management

Our Values

- **Reduce operation costs**
 - Reduce labor and travel while increasing uptime
 - Save administrative efforts on IT infrastructure management
 - Shorten learning curve on various consoles
 - Ease heterogeneous user management and complicated system auditing

Our Values

- **Simplify management**
 - Provide a common and consistent operations and user experiences across the physical and virtual IT infrastructure
 - Provide a single pane of glass for centralized authentication, authorization and accounting
- **Increase availability of critical IT environments 24/7**
 - Deliver the most reliable access to your IT assets
 - Virtually team up various parties for timely technical support on collaborative platform

Energy Efficiency

Extend DSView 3 capability on Energy Efficiency - Coming Soon

- Measure overall IT energy consumption
 - Report power consumption and load capacity at multiple levels

The image displays two screenshots of the Avocent DSView 3 web interface. The left screenshot shows the 'Power Management - Company' page with a tree view on the left and a table of data centers. The right screenshot shows the 'Power Management - Company' page with a tree view on the left and a table of racks.

Left Screenshot: Power Management - Company

Page 1 of 1

Name
Datacenter Silicon Valley
Row1
Row2
Row3
Row4
Datacenter Atlanta
Datacenter Charlotte
Datacenter Sunrise
Datacenter Miami

Right Screenshot: Power Management - Company

Page 1 of 1

Name
Row1
Rack1
Rack2
Rack3
Rack4
Rack5
Rack6
Rack7
Rack8
Rack9
Row2
Rack1
Rack2
Rack3
Rack4
Row3
Row4

Extend DSView 3 capability on Energy Efficiency - Coming Soon

- **Understand Available Power Capacity**
 - Capture real-time data and store historical data to help data center managers understand how much power is *really* being used and how much remain available



Extend DSView 3 capability on Energy Efficiency - Coming Soon

- **Monitor IT Energy Cost**
 - Provide data center managers with the ability to calculate and compare cost across multiple levels – rack, row, data center and company-wide

