

Large Scale Virtualization Conundrum

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OK, So we got our virtual server farm going...

- Will our current management policies/procedures "hold water" in the z/VM environment?
- Should the site's IT-responsibilities remain the same? Should the z/VM system programming team assume some of these responsibilities?
- Will the scope of work remain the same for the:
 - Linux sys-admins?
 - Operations team?
 - z/VM system programming team?
 - Are they all/some of them, expected to do more/less work?
 - Obviously the procurement folks will now have less to do... ☺

Focusing on the problem

- Virtualization cured the "Server Sprawling Blues"
- It is easier to deploy new servers! Hence...
 - Virtual server farms keeps growing much like the physical server farms before...
 - Actually, the virtual farm grows much faster due to the "virtual procurement" process
 - The datacenter becomes heterogenic (Physical and Virtual), dynamic and more complex to manage
 - The Virtual IT is growing and so does the demand for more and more management resources
 - DR is adding to the complexity of it all
- Bridging the gap, between the Linux know-how and the z/VM expertise needed to utilize this know-how, is yet to be address !
- New management solution/philosophy is required !!
- Simplification of the z/VM provisioning processes is a must !!!

Management & Control of z/VM resources

- Considering the lack of, expertise and understanding of the z HW and the z/VM environment -
 - Can the Linux sys-admin folks really become independent in managing their virtual servers?
 - In light of the above - Can the z/VM system programmers provide adequate support for the virtual server farm without impacting the support level of z/VM itself?
- Giving the dynamic nature of the virtual server farm, where servers' count may dynamically shrink and grow as dictated by the business needs -
 - Is the Operations team equipped with the tools to cope with the challenge of handling such an environment?

Different strokes - for different folks

- The groups that manage and control the server farm, target different areas of interests and needs:
 - The Linux sys-admin group
 - The z/VM System Programmers team
 - The Operations team
- Each of the groups require different level of access-to and control-of the system

Management challenges - The Linux sys-admin

- Managing the servers and meta-data repository automatically
- Cloning and configuring new servers
 - Automating the cloning action as much as possible
 - Allow for multiple clones to run concurrently
- Access servers in their scope
 - SSH terminals
 - 3270 console (blah!)
- Taking advantage of the z/VM environment for to deploy maintenance and other site level activities

Management challenges - The Linux sys-admin (Cont..)

- Administrative LAN related operations
 - Dynamic network topology view, with filters if needed
 - connect/disconnect actions
- Storage related operations
 - Manage server storage regardless of its fashion (CKD-Mini disks or FCP-SAN, FS or LVM) with transparent handling of the Linux and z/VM sides

z/VM Systems programmer needs and responsibilities

- Continue provisioning for the z/VM system as a whole
 - Capacity planning, performance and tuning, new HW & SW
- Setting the policies to:
 - Control z/VM resource consumption by the virtual servers
 - storage quotas for quick and easy storage management
- Defining the Linux sys-admins permissions and scope of accessing the z/VM environment
- Defining and managing LAN interfaces from z/VM to the outside world
- Configure the cloning vehicles (FC, FC-II, Data movers etc...)

Operations Challenges

- Virtual servers Initialization and Termination by various criteria (Groups, Projects, LAN connections etc...)
- Monitor the server farm for anomalies
 - Servers that are in error/warning state
 - Networks nodes and connections health
 - Storage quota's status
 - Overall system storage space availability
- Monitor the z/VM health
 - Spool space alerts
 - Page space alerts
 - CPU utilization and I/O rate

CSL answers these challenges with:

- One solution to tie them all... (Tolkien / LTOR)
- For the **Linux sys-admins**, we bridge the gap of their Linux know-how to the z/VM world – So they are productive from the first day their servers moved to z/VM
- For the **system programmers**, we offer simple/automatic provisioning for the Linux virtual server farm so they can continue focusing on keeping z/VM humming along
- For the **Operations team**, we enable intuitive controls to handle any operation tasks (Daily routines to special activities) to ease their tedious and very demanding job role

We call it:

CSL-WAVE

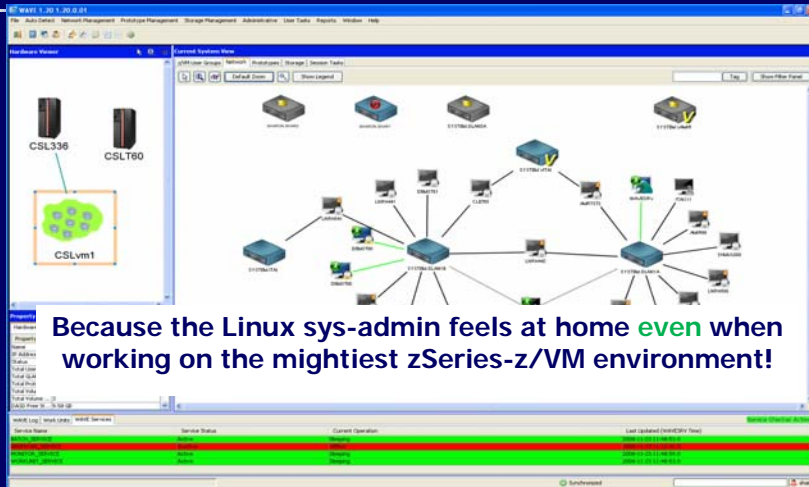
What is CSL-WAVE?

- It's a Provisioning and Simplification solution for virtual server environment
- The solution is based on a 3-Tier Architecture:
 - CSL-WAVE Server - Running our daemons and knowledge-base DB)
 - GUI Client(s) - Where the user (Linux sys-admin) logs on to manage the virtual server farm
 - Target Virtualization Platform API - To converse with the hypervisor services
- The CSL-WAVE Server:
 - Runs the daemons which periodically interrogate the virtualization platform, constantly monitoring the status of desired virtual entities and updating the knowledge-base
 - May be one of the servers on the virtual environment or a physical server on the LAN
- The GUI Client(s):
 - Interrogates the DB and dynamically displays a graphic interpretation of the knowledge-base
 - Acts on user input and issues dynamic API calls to the virtual platform API server to receive ad-hoc information or execute user actions on the virtualization environment
- The API:
 - Mediates requests from the GUI Client(s) and the Daemons to the virtualization environment

CSL-WAVE Effects on z/VM Consolidation Projects

- Removing most of the stumble blocks users fear of normally when moving to new computing environments
- z/VM expertise are not needed by the Linux sys-admins
- Simplification and automation of provisioning tasks are achieved via CSL-WAVE's advanced architecture and GUI
- Linux sys-admins and gurus control their own servers with minimum to no interaction with the z/VM system programmer, nor do they need any z/VM know-how
- CSL-WAVE Clears the path and paves the road to consolidating with z/VM and z/Linux, thus -
- Enables the organizations huge TCO savings – **Millions of \$\$\$**
- Doing it all with the same skill set currently onsite

Why Consolidate with CSL-WAVE?



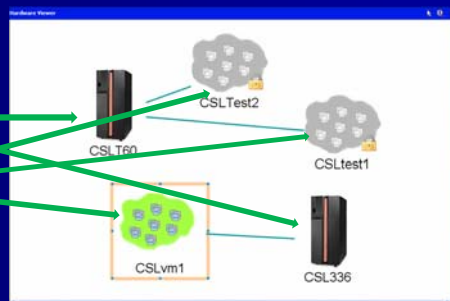
Because the Linux sys-admin feels at home **even** when working on the mightiest zSeries-z/VM environment!

Why Consolidate with CSL-WAVE?

(Cont..)

- Manage multiple CPCs with multiple z/VM instances in each CPC (all in the same CSL-WAVE instance)

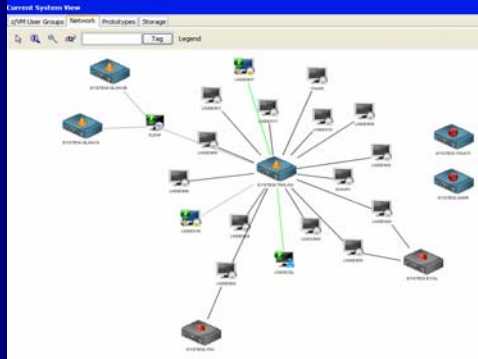
e.g. Two CPCs with virtual z/VM servers clouds on each CPC



Why Consolidate with CSL-WAVE? (Cont..)

- Fully abstracts and simplifies the z/VM environment with intuitive graphic objects

Real-time virtual guest LAN topology:



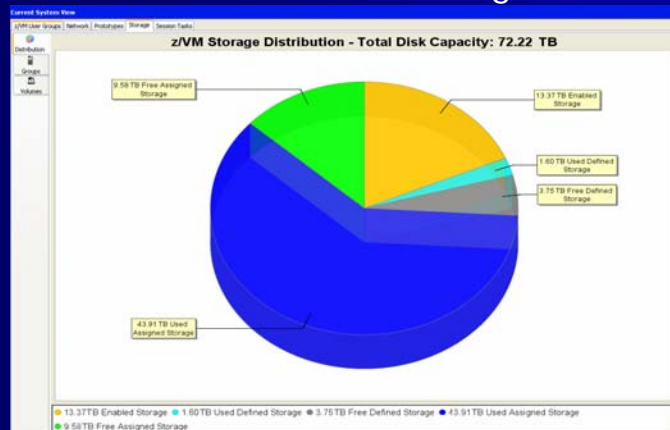
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Why Consolidate with CSL-WAVE? (Cont..)

Real-Time server-farm-wide storage utilization:



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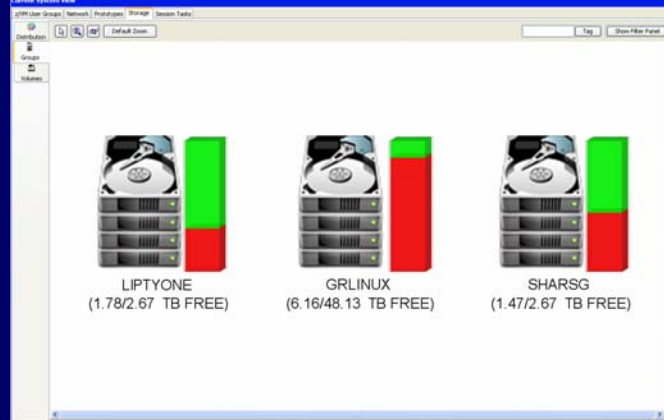
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Why Consolidate with CSL-WAVE?

(Cont..)

Storage-Group quota-based management:



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Why Consolidate with CSL-WAVE?

(Cont..)

- No previous IBM z and z/VM knowledge is required by the Linux sys-admins
- CSL-WAVE is quick to deploy – Installs using one “rpm” file, our unique AutoDetect technology does the rest (All you provide is the z/VM gateway machine’s IP address and the name of the z/VM instance)
- Exceptionally simplifies consolidation projects
- We provide state-of-the-art UI
- CSL-WAVE is geared towards large scale server farm virtualization (Multiple CPCs and z/VMs)

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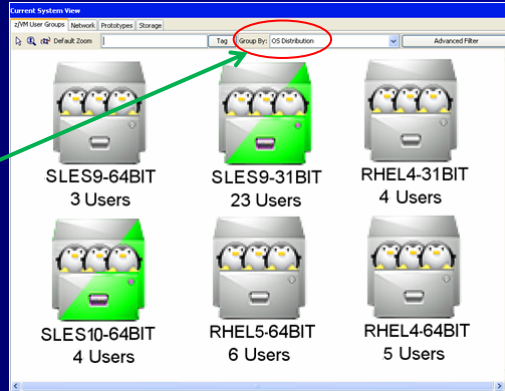
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Why Consolidate with CSL-WAVE? (Cont..)

Supports all the major Linux distributions:

You may choose to view servers grouped by OS distribution



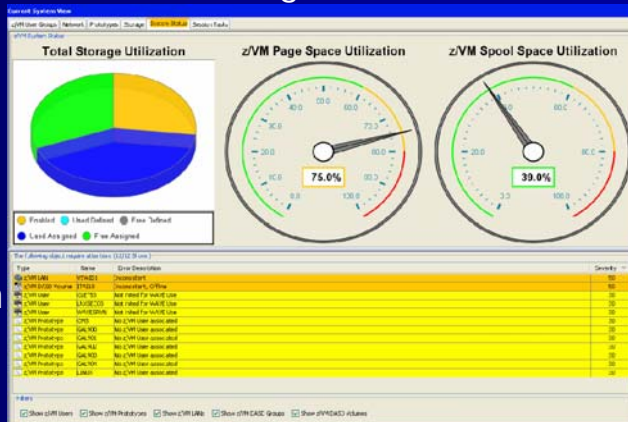
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Why Consolidate with CSL-WAVE? (Cont..)

Get a full system status in a glance, with user defined thresholds as well as dynamic display of all attention required objects



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Why Consolidate with CSL-WAVE?

(Cont..)

- CSL-WAVE Enables **REDUCTION** of the IT Budget (CAPEX and OPEX!!!)
- Practically enables organization to **"Do More With Less"**
- CSL-WAVE brings the power of the IBM z9/z10 servers, running z/VM, to the reach of every datacenter...
- Sites get increased productivity of their IT teams, hence , improving their SLA within the organization
 - Central and intuitive control of huge server farms
 - Shorter IT response time allowing SLA improvements
 - Automation and simplification for nearly error-free operation

With CSL-WAVE: **"Get z Power"**
(Without **z** learning curve!)

CSL-WAVE Main Features:

- [Supports any size virtual Linux server farm](#) (Multiple CPCs with multiple z/VM instance on each CPC are supported)
- [Auto-detect Wizard](#) for a *fast & bullet proof installation*
- Delegate [Scope and Permissions](#) at specific "Action" resolution with role definitions control – The user sees objects within his/her allowed scope only and within this scope, perform actions listed in the allowed set of activities only!
- [System Status Summary](#) display of the selected system
- [Attention Required](#) Summary Display of system wide anomalies
- [Intuitive GUI](#) for every z/VM and Linux provisioning task
- [Group displays and operations](#), with full central control

CSL-WAVE Main Features:

(Cont..)

- [Graphical Management of Guest LANs](#) within z/VM including a LAN-Connect wizard so you just draw your LAN and let CSL-WAVE do the rest of the work
- [Graphical Management of Disk Storage](#) by quotas, while conforming to the scope and permissions policies
- [Enhanced Cloning Wizard](#) (Clone a Server, a Prototype, or server Definitions only) for effortless multiple clones (With an init-script on the cloned server first boot)
- [CLC: Connection-Less-Communication](#) Full access proprietary terminal session with edit capabilities to any virtual server **even when the TCPIP connection to the server is dropped!!**
- [Powerful filter combinations](#) are available for any display e.g. By Site-Groups, User-Groups, Projects, Linux Deployment, Guest-LANs, Server-Name-Mask and Status (Active/Inactive)

CSL-WAVE Main Features:

(Cont..)

- [Full user/system activity logging](#) (and review), with filtering by user/system/date-time stamp and severity
- [Multiple Server Selection](#) option to automate most of the administrative actions needed (Start, Stop, Restart, Send messages, Execute scripts, Connect/disconnect to/from Guest-LANs / VSwitches and more...)
- [Session Background Tasks](#), All actions may be move to BG as GUI Session Tasks (Optionally, the user can check on the tasks' progress and status)
- [Comprehensive Report Manager](#) for generating, running and saving for later use private and global reports

CSL-WAVE Main Features:

(Cont..)

- [Powerful Script Manager](#) facility to manage private and global scripts that may be run on any selected server or group of servers - Filtered directly from the CSL-WAVE's GUI
- [Automatic Properties view](#) of every selected object
- User authentication via Active Directory or CSL-WAVE's own DES encrypted password
- ["Already Sign-On" Detection](#) with IP identification of the currently signed-on WS to assist the detection of potential attempts to breach security

CSL-WAVE Value Proposition Summary

- CSL-WAVE simplifies and automates the virtual server farm's management on z/VM, thus...
- Putting the power of IBM's mightiest platform in every datacenter's technical reach through our innovative and intuitive GUI based architecture, abstracting every z/VM resource and operating procedure for an E-Z Access
- The use of CSL-WAVE facilitates easy and fast elimination of physical servers through virtualization, which beyond the cost reduction -
- Directly Improves IT teams' SLA to better match the business units dynamics
- DRP handles ONE Physical BOX instead of hundreds
- [All of the above value points geared for:](#)

Driving your IT COSTS DOWN!

CSL-WAVE Enables Greener and Less Costly Data Centers

- Easy Consolidation of tens to thousands of servers into one zSeries box with less CPU cores (Ratio of 150+ to 1)
- SW cost, based on # of CPUs is reduced dramatically
- Most of all previously used HW becomes virtual!
- Reduction in consumption of the following resources at the primary and DR datacenters:
 - Server power consumption (about 95% less)
 - AC units power consumption and non recyclables
 - Power plants to support the datacenters
 - Floor-Space and Non-recyclable Computing HW

CSL-WAVE Benefits:

- Enables Linux on zSeries as a practical and most economical solution for "Consolidation Via Virtualization"
- Large datacenters benefit the most from running Linux on z/VM & z/Architecture -
- Where on the same footprint they can grow from tens to thousands of virtual servers with a huge reduction in their server farm's TCO
- With CSL-WAVE the IT team extends their control over the server farm and cut costs

CSL-WAVE: All z VM POWER Without z VM Learning Curve...

Why Consolidate with CSL-WAVE?

(Final!)

Simply:

Because

IT

\$AVES

TIME

And

MONEY!!!

Lot\$ of Money

Disclose-ble Road Map Items, Partial list:

(No commitment for release dates)

- WAVE-PLEX – Support for managing Linux servers across parallel SYSPLEX or TCPIP connected VMs
- Full support for VSwitches and VLANs
- Full support for FCP based storage
- OSA-Express-Console Support (For even better CLC)
- Support for Non-z/VM based servers
 - Any TCPIP based control of CSL-WAVE will be offered for all server platforms
 - Script management
 - Report management
 - LAN Topology charting for managed servers
- Respond to users wish-list items

Let me summaries with:

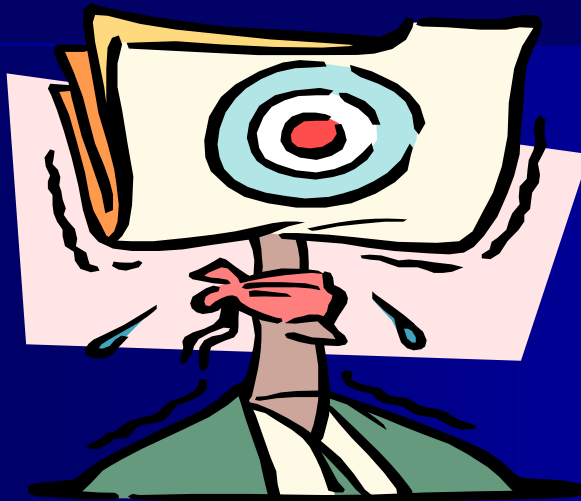
All z VM POWER !!!

(Without z VM Learning Curve...)

Is attainable with

CSL-WAVE

Questions?!



**Thank you
for your time..**