

## Advanced z/VM Systems Management with IBM Wave for z/VM

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# Agenda

- IBM Wave for z/VM
- Functionality
- Benefits
- Fit in Portfolio
- Test Drive Environment
- JumpStart Services
- IBM Wave Tiger Team
- Features and Architectural Overview
- Live Demo



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# Why Organizations need IBM Wave



- **Reductions in budgets** means IT needs to leverage **existing staff to do more with less**. 70-80% of IT spend goes to operations alone.
- **Managers and administrators benefit** from having tools offering self service, with easier and simpler administration
- **z/VM® managers** find they **need** fast and **accurate insight** into changes in their environment
- **Administrators need to eliminate** the continual maintenance, and increased management complexity of writing and maintaining **home grown solutions and scripts**
- **Managers need to train staff new to z/VM** to perform complex tasks quickly and easily
- **Linux® administrators** need to manage a powerful mainframe environment without significant z/VM skills

70 - 80%  
of IT budgets are  
spent on ongoing  
operations and  
maintenance  
costs

Robert Frances Group, "Data Center Optimization Planning – Dashboard Metrics," December 2012

*"IBM Wave is a virtualization management tool for administrators that could reduce the administration and management of IBM z/VM and Linux virtual servers up to 85 to 95 percent."*

Robert Frances Group 2014

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5

in Orlando **2015**

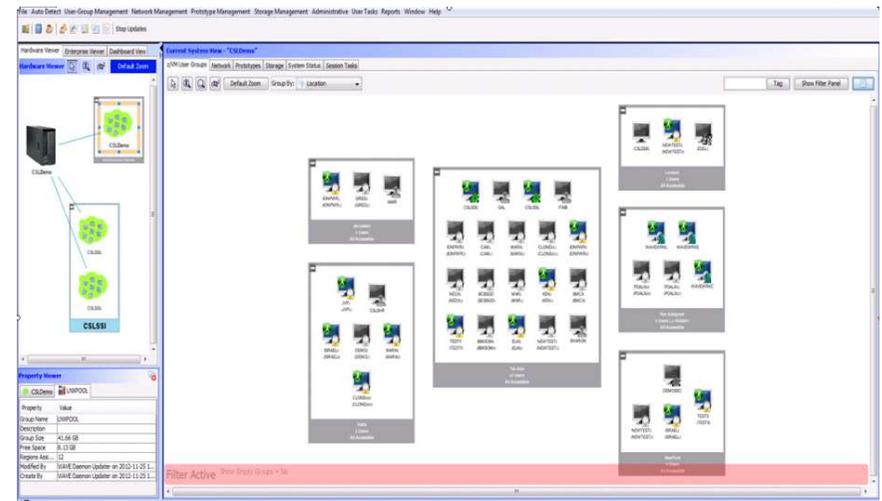


# IBM Wave for z/VM

## Helps Simplify and Automate Virtualization Management For z/VM and Linux virtual servers



- Automate, **simplify management and monitor virtual servers** and resources-all from a single dashboard
- Perform complex **virtualization tasks in a fraction of the time** compared to manual execution
- **Provision** virtual resources (**Servers, Network, Storage**) to accelerate the transformation to cloud infrastructure
- Supports advanced z/VM<sup>®</sup> management capabilities such as **Live Guest Relocation** with a few clicks
- **Delegate responsibility** and provide more self service capabilities to the appropriate teams



**A simple, intuitive virtualization management tool providing management, provisioning, and automation for a z/VM environment supporting Linux<sup>®</sup> virtual servers**

IBM ORLANDO 2013

# IBM Wave - Intelligent Management for Virtualized Environments

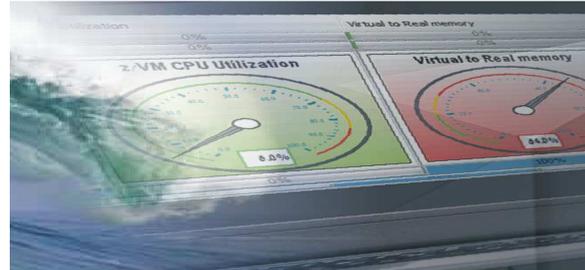


## Advanced Visualization



- Shorten the learning curve needed to manage your Linux and z/V M environment
- Organize and simplify administration of virtual Linux servers; automate and simplify management steps
- View servers and storage utilization graphically; view resource status at a glance
- Use graphical or tabular displays with layered drill down; customize and filter views
- Attach virtual notes to resources for additional policy based management

## Simplified Monitoring



- Monitor z/VM system status through an innovative and interactive UI
- Monitor performance of CPU, paging devices, spool disks and more;
- Use agentless and lightweight resource discovery for an accurate and current view
- Use advanced filters, tagging, layout and layer selection to manage in a meaningful way
- Complements IBM OMEGAMON® XE used for in-depth performance monitoring and historical views

## Resource Management



- Manage your system from a single workstation
- Assign and delegate administrative access using role based assignments
- Provision, clone, and activate virtual servers. Define and control virtual network and storage devices
- Perform complex management tasks such as live guest relocation using a few keystrokes
- Execute complex scripts with a single mouse click

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# IBM Wave Simplified Monitoring

## Intuitive Reports, Graphical Monitoring and Easy Integration



- **Agentless Resource Discovery**
  - Discover, manage and monitor z/VM resources and their relationships across multiple LPARs and CECs
  - Identify resource and relationship changes; reflect current environment in the user interface
- **Monitoring**
  - Allows the state of resources to be observed; icons show additional content for the resources
  - Use graphical and tabular displays with layered drill down to hone in on only the resources you need to view
  - Perform ongoing monitoring of changes that occur after initial auto-detection
- **Reporting**
  - Automatically generate charts like pie charts to report on utilization and more
  - All table-based views can be exported to a CSV file for import into other applications
- **Integration**
  - Use Automatic Guest Classification (AGC) to integrate with existing provisioning process
  - LDAP/Active Directory Support for Authentication and Authorization

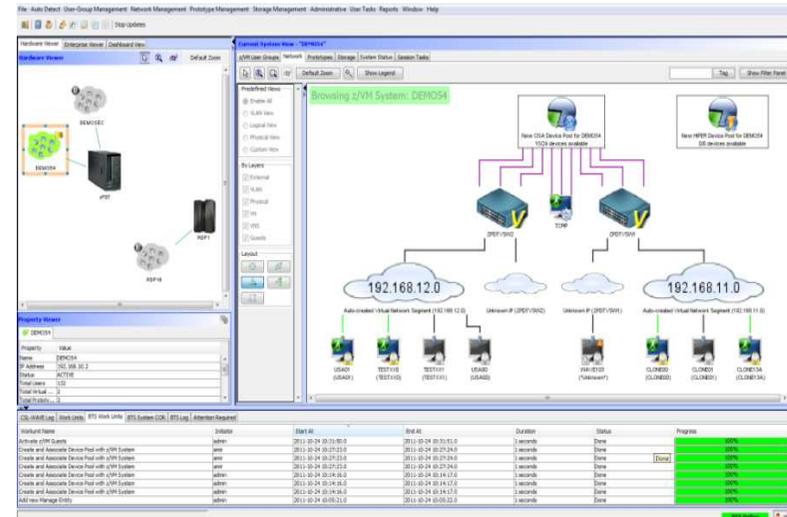
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# IBM Wave Intelligent Visualization Quickly Understand the Status of System Resources



- **Get a current and accurate view of your managed environment**
  - **Network Topology**
    - Centralized view of the entire network topology per z/VM System, view Virtual LANS (VLANS)
    - Annotate network topology view to identify external resources - routers, switches, etc
  - **Linux Servers**
    - View performance gauges for all z/VM systems from one screen:
    - See resource consumption by guest or type
    - CPU, Virtual to Real, Paging, Spool
  - **Storage**
    - Visual representation of all storage resources (ECKD™ and FCP-SCSI)



- **Visualize and control virtual resources**
  - Views can be graphical or easily switched to tabular
  - View relationships between resources easily and graphically
  - View the entire environment graphically and easily zoom in
- **Advanced filters, tagging, layout and layer based views for every display**

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# Performance Resource Monitoring

## At a Glance Status of all z/VM instances



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# Simplify Systems Management Tasks

## Provision resources quickly and easily



CSL-WAVE 3.2.0 (WAVESERV Hostname: cslserv13, IP Address: 192.168.39.77)

File Auto Detect User-Group Management Network Management Prototype Management User Tasks Reports Window Help

Stop Updates

Hardware Viewer Enterprise Viewer Dashboard View

Hardware Viewer Default Zoom

ATSEC12

CSLVM13

Property Viewer

CSLVM13 CSLRHEL (CSLVM13)

Property	Value
Name	CSLRHEL
Status	Inactive
Eligible	Yes
Group	USER-LOCAL
Type	Linux
Distribution	RedHat 6 - 64 Bit
1st IP Address	192.168.39.75
Project	DMV
Functionality	N/A

CSL-WAVE Log BTS Work Units BTS System COR BTS L...

WAVESERV Time User

2014-01-28 17:08:41	dmvuser
2014-01-28 17:09:39	dmvuser

Waiting for user input

Clone z/VM Guest CSLRHEL in z/VM System CSLVM13 (3/3) Selected

New Clone information

CSC Information

Target z/VM System Name: CSLVM13

New Clone Parameters

Number of clones: 3 Basename for clones: LICENSE New Password: ... Verify new password: ...

New Storage Group: CSLGRP (249.81 GB Free) [Update]

Clone the following users

Name	Hostname	System	ATS395	Virtual Network 2	Virtual Network 3	Status
<input checked="" type="checkbox"/> LICENSE0	LICENSE0	CSLVM13	192.168.39.67			Ready
<input checked="" type="checkbox"/> LICENSE1	LICENSE1	CSLVM13	192.168.39.68			Ready
<input checked="" type="checkbox"/> LICENSE2	LICENSE2	CSLVM13	192.168.39.69			Ready

Select All Deselect All Toggle Selection Show Filtering Parallel

Total Storage Needed: 62.5 GB

Network Configuration FCP Configuration Optional Configuration

Network Information

Virtual Segment	Virtual Network	Network	Default GW	Port type
<input checked="" type="checkbox"/> ATS395	SYSTEM.CSLVSWCH (z/VM VSwitch)	192.168.39.64	<input checked="" type="checkbox"/>	N/A

Hide Cancel Go

CLONE00 (CLONE00)

CLONE01 (CLONE01)

SYSTEM.VMVS2

z/VM A z/VM B

BTS Online dmvuser

5:11 PM

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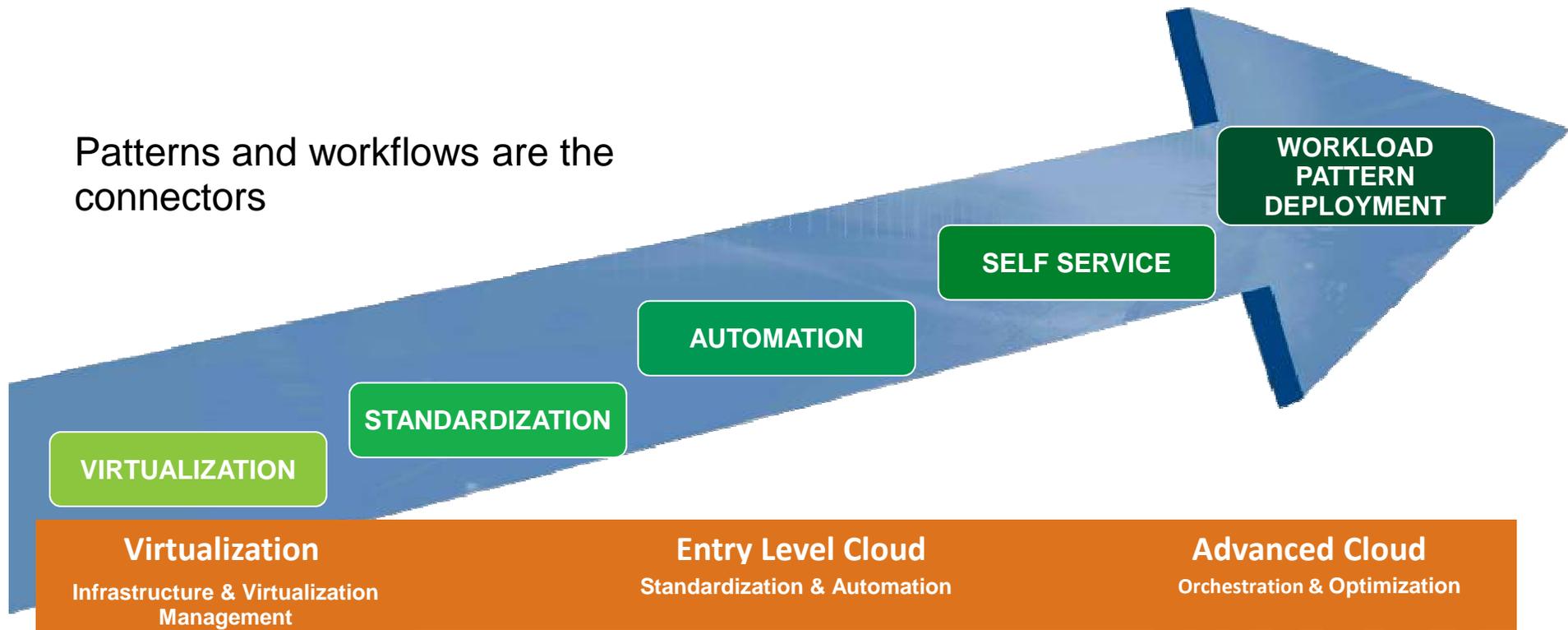


# Cloud Computing – Based on Virtualization and Standardization



Helps facilitate better integration between infrastructure – system admins – and middleware/applications - developers/architects

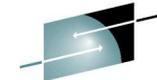
Patterns and workflows are the connectors



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# Virtualization and Cloud Portfolio for Linux on z Systems



<b>Virtualization Infrastructure &amp; Virtualization Management</b>	<b>Entry Level Cloud Standardization &amp; Automation</b>	<b>Advanced Cloud Orchestration &amp; Optimization</b>
<p><b>zEnterprise: z13, zBC12</b></p> <ul style="list-style-type: none"><li>• Massively scalable</li><li>• Characterized by great economics / efficiencies</li><li>• Highly secure / available</li></ul> <p><b>z/VM 6.3</b></p> <ul style="list-style-type: none"><li>• Support more virtual servers than any other platform in a single footprint</li><li>• Integrated OpenStack support</li></ul> <p><b>Linux on z Systems</b></p> <ul style="list-style-type: none"><li>• Distributions available from RedHat and SUSE</li></ul> <p><b>IBM Wave for z/VM</b></p> <ul style="list-style-type: none"><li>• A tool that simplifies the management and administration of the z/VM and Linux on z Systems environment via an intuitive graphical user interface</li></ul>	<p><b>IBM Cloud Manager with OpenStack</b></p> <ul style="list-style-type: none"><li>• A simple, entry level cloud management stack</li><li>• Based on OpenStack</li><li>• Formerly known as SmartCloud Entry</li></ul>	<p><b>IBM Cloud Management Suite for System z</b></p> <ul style="list-style-type: none"><li>• Builds on functionality of Cloud Manager with OpenStack and adds runbook automation and middleware pattern support for workload deployment</li><li>• Includes SmartCloud Orchestrator</li><li>• Also includes Tivoli Storage Manager and OMEGAMON XE on z/VM and Linux</li></ul> <p><i>Service Lifecycle Management</i></p> <p><b>SHARE</b> in Orlando <b>2015</b></p>

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*Differentiation*

*Standardization*

# Feature overview - Automation and simplification



- View the entire server farm laid out graphically
- Ordered Activation/Deactivation of servers
- Execution of customer's REXX as part of the cloning process to allow local z/VM customization
- Run Linux shell scripts against dynamically grouped/filtered servers, as IBM Wave for z/VM background tasks, listing the results for each selected server - All via the GUI
- Run REXX EXECs against any virtual object with customized parameters and results listing - All via the GUI
- WAVECLI – A CLI for IBM Wave for z/VM actions that can be utilized from Linux shell scripts or Windows Batch files
- Access z/Linux guests directly from the GUI using SSH, 3270 or CLC– No hostnames or IP addresses to remember, simply right-click on the server and select the desired access

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# Feature overview - Provisioning

- Sophisticated guests cloning including Cross System Clone (across LPARs and CPCs)
- Ability to customize the first boot of a cloned server (before TCP/IP is initialized)
- Simple creating and manipulation of Vswitches and Guest LANs
- Connect/disconnect guests to Vswitches or Guest LANs via the GUI
- Storage management and provisioning at the z/VM and Linux levels (including LVM support)
- Automatic handling of Real or Dedicated devices via IBM Wave for z/VM's user defined Device Pool

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# Feature overview – Network support



- Centralized, layer based view of the entire network topology per z/VM system
- Define and control all network devices such as VSwitches and guest LANs
- Manipulation of servers-to-network connect/disconnect using GUI
- Support for VLAN usage
- Management of VSwitches with protocol layer 2 or 3
- Customize network topology view with external resources such as routers, LPARs etc.

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# IBM Wave Requirements

## Client

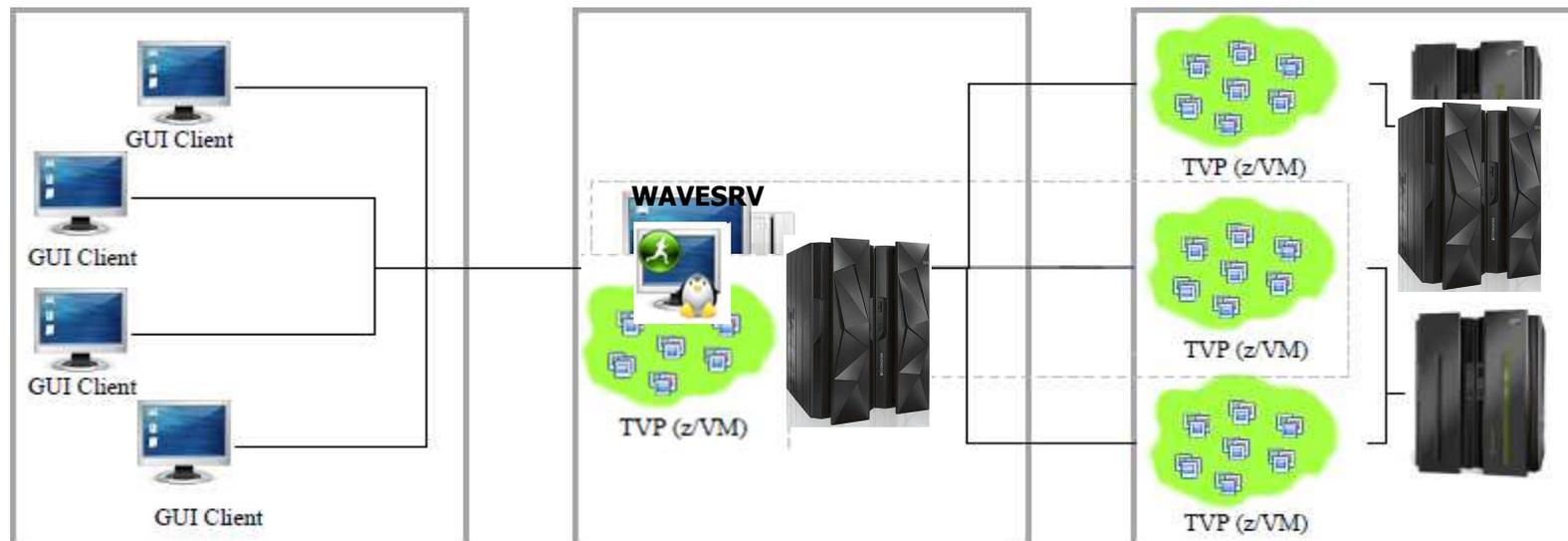
- Windows 7 Workstation
- Internet Explorer or Firefox
- Java Runtime 1.7 with Web Start Support
- PuTTY or equivalent telnet/SSH client

## WAVESRV

- z/VM Guest or LPAR
- RHEL 6 or SLES 11
- MySQL V12.22 or higher
- Java SE Runtime 1.7
- Apache

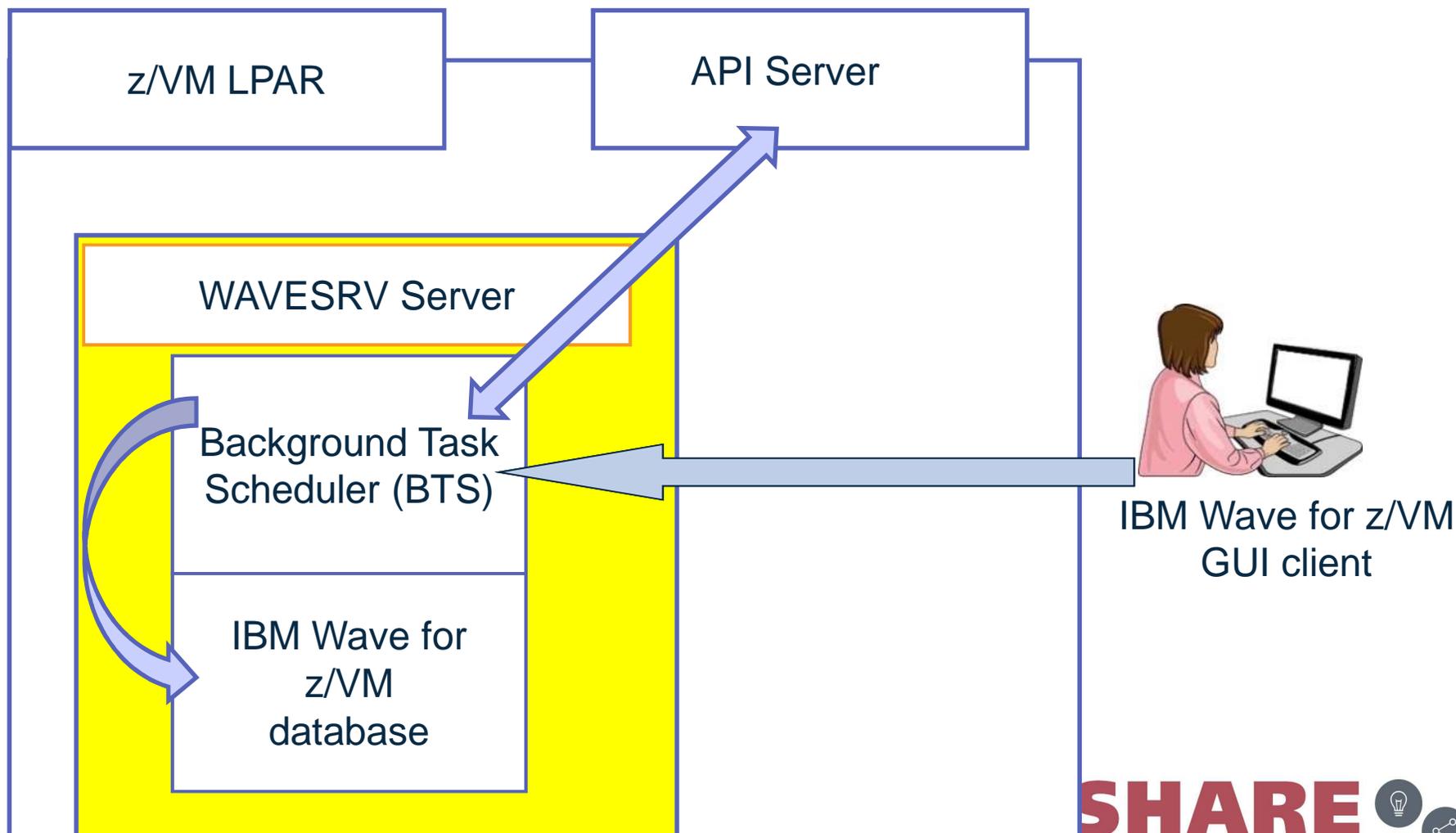
## TVP

- IBM System z10® or later
- z/VM V5.4, V6.2 or higher with Systems Management API configured
- IBM Directory Maintenance for z/VM (DirMaint™) or equivalent
- Performance Toolkit for VM™ (Perfkit, optional but suggested)



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# IBM Wave for z/VM: Tier 2 – WAVESRV server



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# IBM Wave for z/VM WAVESRV server foundation



- **Background Task Scheduler (BTS)**
  - Employs Work Unit processing architecture for BTS worker threads
- **Knowledge Base**
  - Keeps track of the managed system components and their associated metadata
- **Common Output Repository (COR)**
  - Stores output generated by each BTS work unit
- **Message Brokers**
  - Efficiently moves messages across all system components
- **Security Enforcer**
  - Controls the scope and permission of every user action
- **Device Management**
  - Simple and automatic control of all virtual and real/dedicated devices

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# IBM Wave for z/VM Target Virtualization Platform (TVP)



- IBM Wave utilizes the SMAPI interface in order to mediate requests from the BTS and the GUI Client.
- Specific functions executed on the z/VM System using the following Service Machines:
  - **WAVEWRKS**
    - The Short Service Machine executes various compiled REXX EXECs to interact with the z/VM environment
  - **WAVEWRKL**
    - The Long Service Machine provides an additional thread of execution to run longer scripts or executes some directory manager commands
  - **WAVEWRKC**
    - This Cross-System Cloning Service Machine is used to stream minidisks from a source z/VM system to a target z/VM system during cloning actions.
- As part of the auto-detection process when adding a new z/VM System to IBM Wave management, these 3 service machines are created and started on the z/VM System automatically.

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# Planning and Design



- **Sizing**
  - **1GB RAM**
  - **Filesystems:**
    - /boot 100MB (approx. 100 Cyls)
    - / 2GB (approx. 3000 Cyls)
    - /var 3GB (approx. 4500 Cyls)
- **Sizing the log space areas**
  - By default, logs are stored in /var
    - configure the /var filesystem as a logical volume under LVM so it can be extended when needed
- **Location of WAVESRV server**

The server is implemented as a virtual server within a z/VM LPAR.

# Sample directory entry for the WAVESRV virtual server



\*\*\*\*\*

```
USER WAVESRV <Password Here> 1G 2G GC
CPU 00
IPL CMS
MACHINE ESA 4
OPTION QUICKDSP
CONSOLE 0009 3215
NICDEF 0800 TYPE QDIO LAN SYSTEM <GLAN/VSWITCH Name here>
SPOOL 000C 3505 A
SPOOL 000D 3525 A
SPOOL 000E 1403 A
LINK MAINT 0190 0190 RR
LINK MAINT 019D 019D RR
LINK MAINT 019E 019E RR
MDISK 0191 3390 1 3 <DASD Volume Name here> - This is a CMS minidisk
MDISK 0150 3390 1 3000 <DASD Volume Name here> - This minidisk will be used for
"/"
MDISK 0151 3390 1 4500 <DASD Volume Name here> - This minidisk will be used for
"/var"
MDISK 0152 3390 1 200 <DASD Volume Name here> - This minidisk will be used for
swap
```

\*\*\*\*\*

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# IBM Wave Systems Management Task Example:

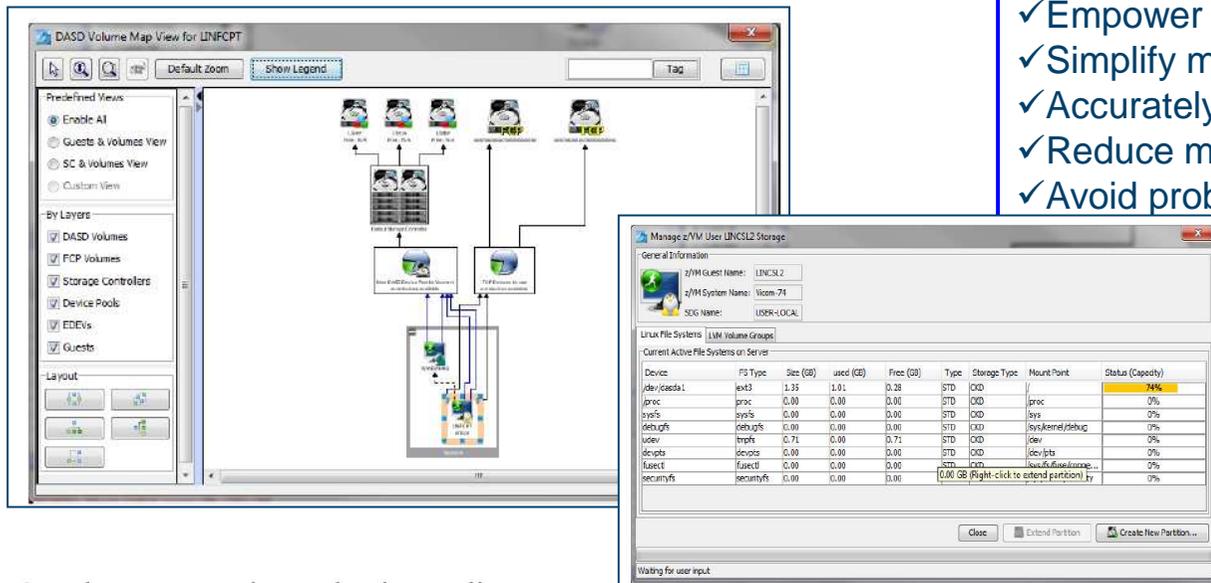
## “Add Disk Space To A Virtual Server”



### Without IBM Wave

1. Find requested disk space
2. Create disk definition
3. Activate definition
4. Connect storage to virtual server
5. Mount device
6. Create a File System

### View Storage at a Glance



### With IBM Wave

1. Open the “Add Storage” form
2. Fill the storage capacity requested
3. Press the “Go” button

### Benefits:

- ✓ Reduce reliance on scarce skills
- ✓ Respond faster to IT customer needs
- ✓ Reduce costs
- ✓ Empower team to do more independently
- ✓ Simplify management
- ✓ Accurately depict current environment
- ✓ Reduce manual procedure errors
- ✓ Avoid problematic situations downstream

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# IBM Wave Systems Management Task Example:

## “Clone a Virtual Machine”



### Without IBM Wave

1. Determine if required resources exist
2. Create clone VM definition
3. Define clone VM resources
4. Create copies of private VM resources (server)
5. Create copies of private VM resources (disk)
6. Customize clone VM
7. Authorize clone VM access / VSwitch Access
8. Add clone to management groups
9. Activate clone
10. Configure the network
11. Run middleware configuration scripts
12. Monitor and report on cloning operation.

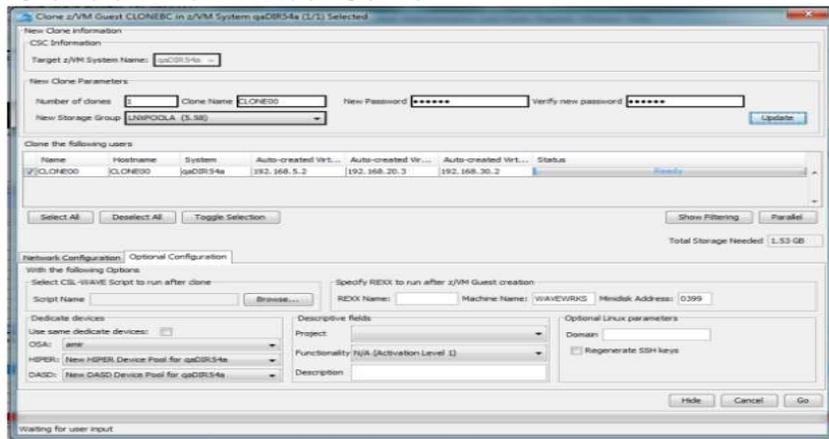
### With IBM Wave

1. Open the “Clone” form
2. Fill in the needed information
3. Press the “Go” Button

### Benefits:

- ✓ Reduce time for a highly complex task
- ✓ Reduce costs
- ✓ Reduce reliance on scarce skills
- ✓ Improve speed to clone
- ✓ Simplify management
- ✓ Reduce errors associated with manual procedures
- ✓ No need to monitor every step of the process

### Clone a Linux Virtual Server



# IBM Wave Systems Management Task Example:

## “Live Guest Relocation”



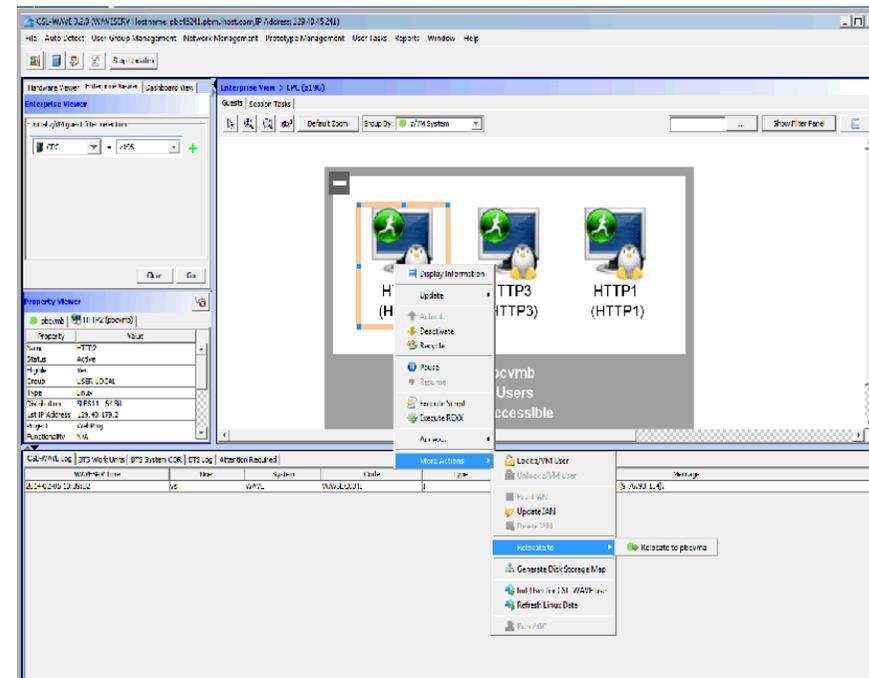
### Without IBM Wave

- Using manual control program commands

Task	Task Steps
Log into both z/VM instances	Login PBCVMA Login PBCVMB
Find out which instance has the running guest	q HTTP2 in PBCVMA q HTTP2 in PBCVMB
Verify the guest can be moved	vmrelo test HTTP2 to PBCVMB
Move the guest	vmrelo move HTTP2 to PBCVMB
Log out of both z/VM instances	Logoff PBCVMA Logoff PBCVMB

### With IBM Wave

- Using the GUI’s Drag-and-Drop techniques
- Or Execute via menu selection



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## IBM Wave for z/VM Tested Productivity Savings\*



IBM Wave is designed to help automate and improve the productivity of many administrative tasks. Tests were run on a zEnterprise processor both with and without the IBM Wave interface\*\*.

Tasks	Manual Times in seconds	With IBM Wave Times in seconds	Reduction in time
Clone a Guest Linux Server	576	29	95%
Activate/deactivate a guest	65	10	85%
Add a virtual switch	88	20	77%
Execute scripts for a guest	96	18	81%
Monitor z/VM	30	13	58%
Live guest migration	95	13	87%

\*These are sample task timings conducted by the IBM Competitive Project Office. Manual test times assumed a base knowledge of z/VM and assume no additional scripting. Individual test results may vary.

\*\*Tests used a zEnterprise 196.model 2817-H10 running z/VM 6.3 with 6 cores shared by LPARS in the test. Each z/VM has 128G of memory.

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# IBM Wave Tiger Team – WW Coverage



**Marty Horan**  
Manager



**Ernest Horn**



**Eduardo Oliveira**  
Team lead



**Roland Trauner**



**Ivan Dobos**



**Brant Zhang**



**Luis Ferreira Ramos**



# Complete Solution for administration and management of the z/VM and Linux on z Systems environment



## IBM Infrastructure Suite

### Linux on z Systems

OMEGAMON XE on z/VM and Linux

Tivoli Storage Manager

Performance monitoring of z/VM and Linux guest

File Level backup and recovery for Linux Virtual Machines

### z/VM

Wave for z/VM

Simple, intuitive, graphical z/VM management tool

Operations Manager for z/VM

Backup and Restore Manager for z/VM

Facilitate automated operations, take action based on events

Backup and restore full z/VM environment

**SHARE**

Gain the Competitive Edge

# Enterprise Linux Server features IBM Wave for z/VM



Enterprise Linux Server includes IBM zEnterprise® hardware, hardware maintenance, IBM virtualization and management software components and software support & subscription.

## Hardware options

- IBM zEnterprise server
- 32 GB memory
- Connectivity
- S&S

## Virtualization software

- IBM z/VM Version 6
- z/VM basic features:
  - Dirmaint™, RACF®, Performance Toolkit for VM™, RSCS
- NEW! IBM Wave for z/VM** included
- 3-5 years S&S
- **Note:** Linux ordered from Red Hat or SUSE

### Enterprise Linux Server

Includes IFLs, memory, I/O adapters, z/VM software including 3-to-5 years of S&S, and maintenance

### Solution Edition for Enterprise Linux

Acquire incremental Linux CPUs (IFLs), memory, z/VM software and 3-5 years of subscription and support, and maintenance.



Complete your session evaluations online at [www.SHARE.org/Orlando-Eval](http://www.SHARE.org/Orlando-Eval) <sup>1</sup> 28-32 GB memory on zBC12, 24 GB memory per core up to 5 IFLs on z114.



# Enterprise Cloud System (Pre-configured and integrated system)



- **Server:**

- IBM zEnterprise® EC12 **or** IBM zEnterprise BC12 (zEC12, zBC12)

- **Storage:**

- IBM DS8870 **or** Storwize® V7000

- **Software:**

- z/VM® 6.3 with following features:
  - Directory Maintenance (DirMaint™) Feature
  - Resource Access Control Facility (RACF®)
  - Performance Toolkit for VM™ Feature
  - Single System Image (SSI) Feature –
    - (Requires ECKD DASD)
- IBM Wave for z/VM
- Cloud Management Suite:
  - OMEGAMON® XE on z/VM and Linux
  - Tivoli Storage Manager
  - SmartCloud Orchestrator
- Operations Manager for z/VM
- Backup and Restore Manager for z/VM

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in Orlando 2013

# FCP/SCSI Support



- IBM Wave always supported FCP/SCSI environments.
  - IBM is very committed in enhancing IBM Wave's support for FCP/SCSI-only environments.
  - New and important functionality was made available on IBM Wave FCP/SCSI-only environments on July/2014 (eDEV support)
  - IBM will keep investing on IBM Wave to continue to develop its capabilities not just on FCP/SCSI-only environments, but across the entire product.
- **IBM Wave absolutely supports FCP/SCSI !**

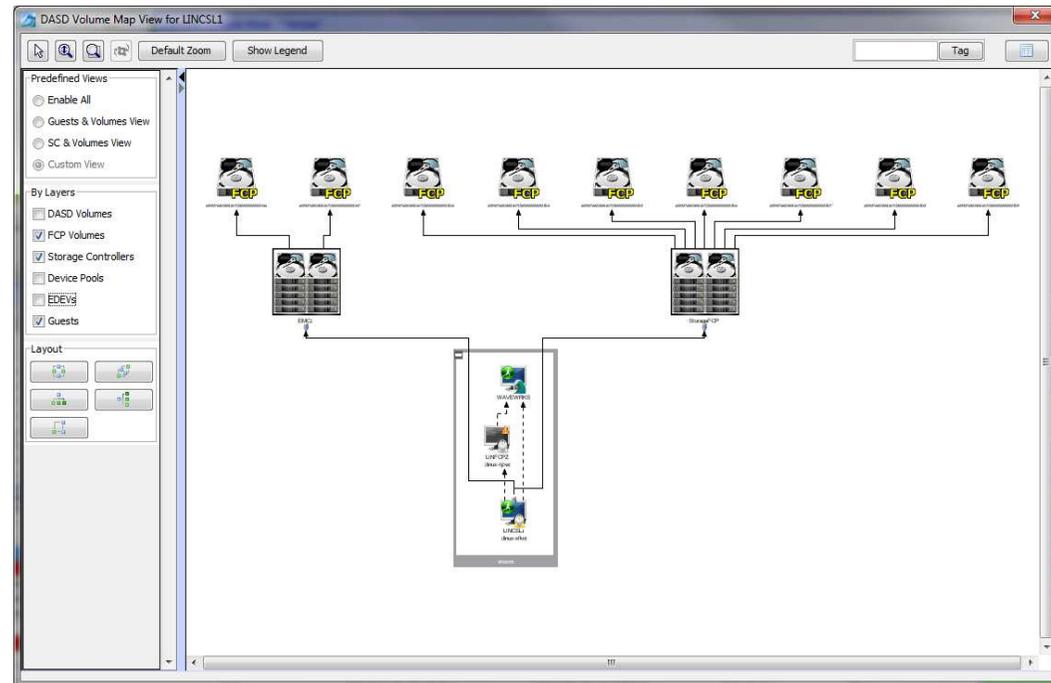
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# FCP/SCSI-only environments

- Specifically for direct attached SCSI disks:

- Visualize disks
- Add disks to guest
- Create partitions
- Create/extend LVM volume group and logical volume
- Create/resize new file system



- At GA in February/2014:
  - The IBM Wave installation itself was possible, requiring one to manually create the IBM Wave service machines prior to installing the IBM Wave RPM. Note that IBM Wave utilizes EDEVs for its own disk space.

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# IBM Wave Enhancements Since V1.1

Easier to customize IBM Wave for your site

- Use additional Exits for site-specific configuration

More extensive support for Linux distros

- Red Hat Enterprise Linux (RHEL) 7
- SUSE Linux Enterprise (SLES) 12
- Bare Metal Install for SLES10, 11 and RHEL5, 6 + Layer 2 Network support
- Ext4 File System Support (RHEL6 only)

Improved FCP SCSI device support

- Enhanced storage support for
  - FCP SCSI-only environments using EDEVs
  - Richer EDEV support
  - SAN (FCP/SCSI) improved support for direct attached FCP devices
- Expanded management from a central point of control

Easier to get started with cloud

- Enhanced Cross System Cloning

Easier serviceability and support

- LDAP configuration checker
- Improved Auto-detection
- First Failure Data Capture to help capture diagnostics to aid in problem resolution

Strengthened security and audit

- Verisign authenticated code signing certificates
- Mixed case password support
- Additional audit records generated
- Supports your LDAP configuration



# IBM Wave Enhancements Since V1.1

Generate reports on demand, using customized data

- Improved Flexible Reporting Capability with many new data points for richer report content
- Export reports as needed to CSV or other formats
- Automatically provides current view of environment

SoD for Audit

- SOD for enhanced audit logging
- Allows an IBM Wave administrator to satisfy corporate auditing needs by accessing a consolidated log of auditable activities.

SoD for IBM Wave Server

- IBM intends to support the installation and execution of the IBM Wave server (IBM WAVESRV) on Red Hat Enterprise Linux (RHEL) 7 and SUSE Linux Enterprise Server (SLES) 12 distributions

**IBM Wave offers increased automation and simplification around management of virtual Linux environments on z Systems**

# New IBM Wave V1.2 Enhancements

- Reporting enhancements
  - Users can now create customized reports on resources managed by IBM Wave
- Support of latest Linux distributions\*
  - Red Hat Enterprise Linux (RHEL) 7
  - SUSE Linux Enterprise Server (SLES) 12

# New Reporting Capabilities

## Business Value

Obtain the current and specific information you need, on demand

Handle report management workflow with ease

Create reports on demand in a self sufficient manner

## How

### Generate accurate inventory of your environment

- Customize reports with filtering and tagging
- Discover unused resource
- Easily manage and report on resources using detailed templates

## Benefits:

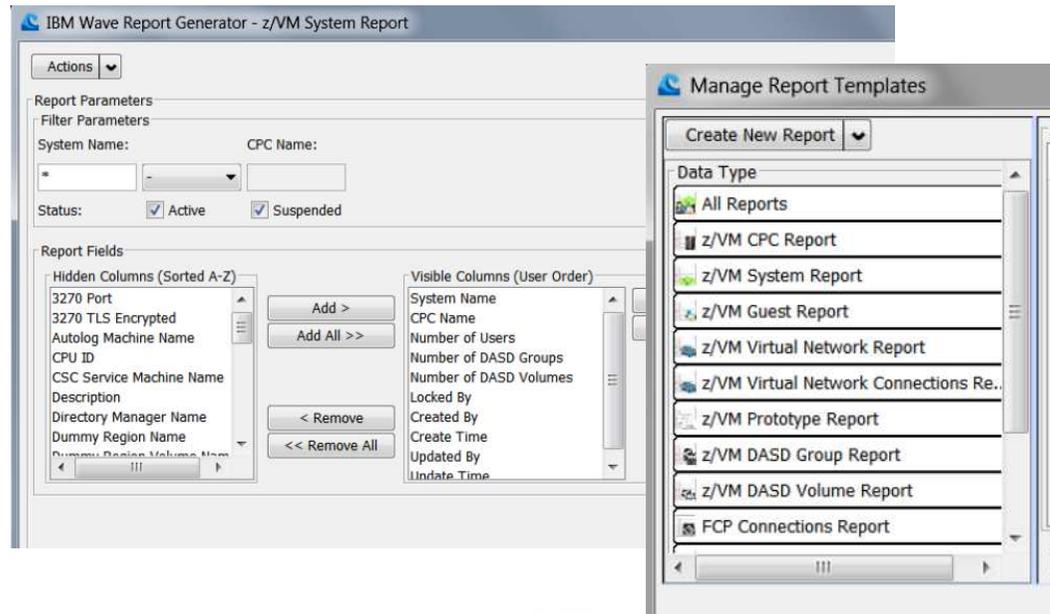
Provides visibility into your z/VM systems whenever you need it

Templates and Customization to help you create detailed reports for more meaningful content

Uses IBM Wave's scopes and permissions to restrict unauthorized access

Export reports (e.g.; CSV format) for further analysis and reporting workflow and get it documented

## View and customize reports easily



# Client Reference



North Carolina  
Farm Bureau Insurance Group

## Business Need:

North Carolina Farm Bureau Mutual Insurance Co., Inc. (NCFBMIC) wanted to improve its server-cloning methodology. The goal was to provide management with a status dashboard and to be able to delegate server on/off functions to server administrators.

## Solution:

NCFBMIC engaged IBM Systems Lab Services and Training to implement IBM Wave for z/VM software in order to simplify the administration and management of its IBM z/VM hypervisor-based servers. The Systems Lab Services and Training team provided onsite expertise to help the client install, configure and deploy the Wave for z/VM software and provided skills transfer and advice on using the software.

## Benefits of the Solution:

By engaging IBM Systems Lab Services and Training to implement IBM Wave for z/VM software, NCFBMIC gained the ability to clone its server environments quickly. In fact, the **client reduced server deployment time by more than 83 percent, from 1.5 hours to 15 minutes**, and the time it takes to **add disks to an existing server by more than 93 percent, from 30 minutes to as few as two minutes**. With the software in place, the client gained immediate insight into the overall status of its systems. The client's management team was extremely happy with the insights into the status of the system, especially system performance and the numbers and types of virtual servers. The client's limited skills with the IBM z/VM hypervisor were immediately amplified by use of the Wave for z/VM software.

## Client Quote:

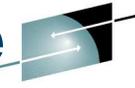
"The biggest benefit I see from the IBM Wave software is the **reduction in time it takes to deploy a server**. Users think I'm preallocating servers for them, I can create them so quickly. If the users want to think I'm a wizard, I won't disagree. "IBM Wave software has made my job significantly easier. Pushing out updates is incredibly easy. I really **like the monitoring dashboard and displays**; I keep the dashboard open on my desktop at all times. What used to take minutes now takes seconds, such as adding a storage volume. The impact it has on the tasks it automates has been enormous."  
--Justin Randall, systems programmer, NCFBMIC

Any public use, such as in marketing materials, on WWW sites, in press articles, etc., requires specific approval from the client. It is the responsibility of the person or any organization planning to use this reference to make sure that this is done. The IBM representative will, as appropriate, contact the client for review. You should not contact the client directly. **Primary contact information:**

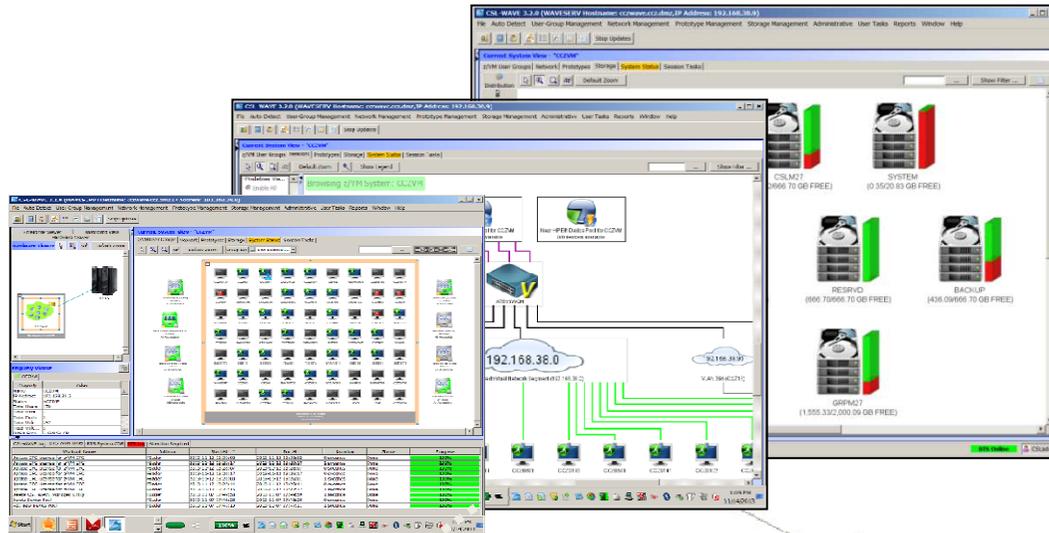
Garry L. Grandlienard - zClient Architect - USA - [ggrandl@us.ibm.com](mailto:ggrandl@us.ibm.com)



# Learn More with IBM Wave Client Hands on Experience



**SHARE**  
Educate • Network • Influence



**IBM Advanced Technical Support**  
**Washington Systems Center**  
**Gaithersburg, MD**



## Client Sites Worldwide

Complete your session evaluations online at [www.SHARE.org/Orlando-Eval](http://www.SHARE.org/Orlando-Eval)

## Hands on IBM Wave Environment now available

- Client hands-on experience using IBM Wave on a IBM zEnterprise EC12 (zEC12)
- Secure remote access from client site to zEC12 in Gaithersburg, MD
- Accessible 24 hours a day, 7 days a week (except for occasional planned outages)
- Guided exercises provide hands on experience with IBM Wave
- Contact your representative to get started today

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# STG Lab Services – IBM Wave Jumpstart Services for zEnterprise



- This Jumpstart service can help to accelerate your IBM Wave implementation.
- This service offering provides planning, installation, and usage assistance.
- We tailor the installation to your environment and provide skills transfer by reviewing common use cases of the interface with your support staff.

## Key Features:

- This service helps accelerate the implementation and ROI with IBM Wave
- Assistance in planning the implementation by those who have implemented and used for several years
- Provide recommendations on integration and configuration in your environment
- Demonstrate how to implement custom REXX™ Execs with IBM Wave to extend functionality
- Integration with your AD for authentication
- Demonstration and review of common IBM Wave use cases with your staff in a workshop setting
- Demonstrate how to enable existing Linux servers to be managed by IBM Wave
- The Jumpstart is usually typically complete in one week depending upon the size of the deployment

## Target Audiences:

- zEnterprise z/VM and Linux Administrators
- Existing and First in Enterprise customers
- Organization who want augment the z Systems support staff with less experienced IT professionals

## Business Drivers:

- Reduced staff z/VM experience requirements
- Increased IT staff productivity
- Reduce systems management costs

## Contact:

- [stgls@us.ibm.com](mailto:stgls@us.ibm.com) for questions specific to this service.

**Our z Systems experts have years of experience in working with IBM Wave**

Complete your session evaluations online at [www.SHARE.org/Orlando-Eval](http://www.SHARE.org/Orlando-Eval)



# Z Systems Technical Sales – WW IBM Wave for z/VM TIGER TEAM



**Marty Horan**  
Manager



**Ernest Horn**



**Eduardo Oliveira**  
Team lead



**Roland Trauner**



**Ivan Dobos**



**Brant Zhang**



**Luis Ferreira Ramos**

IBM System z Tiger Team:



IBM.

# Top Reasons Why you Need IBM Wave

- Does your company need to simplify advanced virtualization functions? ✓
- Do you need to accelerate the productivity of less experienced staff? ✓
- Would you like the convenience of reporting capabilities without having to navigate to another product? ✓
- Would it be convenient to easily visualize configuration and status of virtual guests? ✓
- Do you ever need to limit authority to effect resource changes to certain staff? ✓
- Could you use automatic notifications to alert staff from performing certain operations during critical periods? ✓
- Would you like to be able to perform easy drag and drop connections, like connecting z/VM to a virtual network? ✓
- Can you group and filter virtual resources and manage them in a way that is meaningful to your users? ✓
- Would you like to perform complex tasks like LGR in seconds? ✓
- Would you like to simplify the capturing and cloning of virtual Linux guests in a few clicks? Would you like to be able to customize cloning and add scripts? ✓

IBM Wave



Would you like to do all of this with one product?

Complete your session evaluations online at [www.SHARE.org/Orlando-Eval](http://www.SHARE.org/Orlando-Eval)



# For more information

## Sales Assistance

Sales Support Information ([IBM](#)) ([BP](#))

- [IBM Wave Tiger Team](#)
- *On site and remote briefings/demos, POC install, enablement: available worldwide*

## Launch Event

## Collateral

- [IBM Wave External Webpage](#)
- [Oracle Database deployment using IBM Wave for z/VM Whitepaper](#)
- [Demo: IBM WAVE Video](#)
- [Video: Master IT Complexity with the IBM Enterprise Linux Server and IBM Wave](#)
- [Brochure: Empowered Visualization Management IBM Wave for z/VM](#)

## IBM Wave for z/VM Redbooks

- [IBM Wave for z/VM Installation, Implementation, and Exploitation](#) SG24-8192-00 June 2014
- [IBM Wave for z/VM: An Introduction](#) TIPS1080 February 2014

## Social Media

- [Social Media Tip Sheet](#)
- [\(Link\)](#)



### Mainframe Insights Blog

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- [@Think\\_Computing](#)



# IBM Wave for z/VM - Live Demo



IBM-NA (CSLVM17)  
28 Users  
All Accessible



IBM-SEC (CSLVM17)  
12 Users  
All Accessible



IBM-DIRM (CSLVM17)  
6 Users  
All Accessible



IBM-UTIL (CSLVM17)  
11 Users  
All Accessible



USER-LOCAL (CSLVM17)  
9 Users (+1 Hidden)  
All Accessible



WAVE-INTERNAL (CSLVM17)  
4 Users  
All Accessible



IBM-SYSTEM (CSLVM17)  
5 Users  
All Accessible



IBM-SMAPI (CSLVM17)  
11 Users  
All Accessible



IBM-COM (CSLVM17)  
37 Users  
All Accessible



IBM-OPER (CSLVM17)  
6 Users  
All Accessible



IBM-ENS (CSLVM17)  
4 Users  
All Accessible

**IBM System z Tiger Team: News**

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# IBM Wave Tiger Team

Engage with me socially:



<http://twitter.com/ecolive>

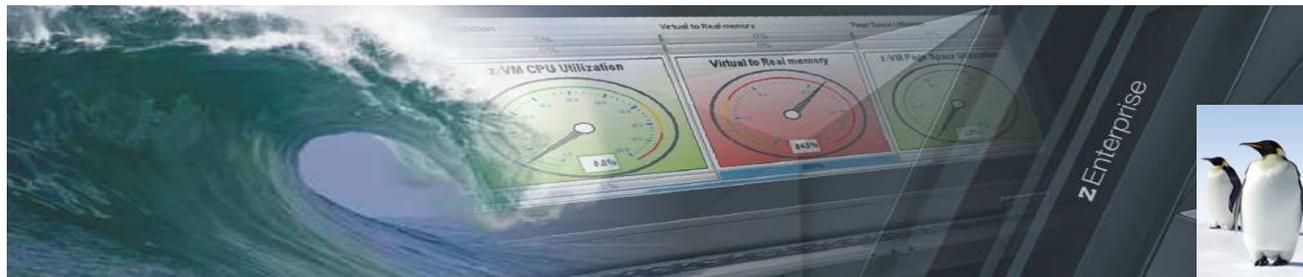
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