

#1

CONVERTING

VIRTUAL SPRAWL

The only thing *worse* than not virtualizing your data center is **NOT** planning it correctly!

Staffing the
Data Center,
introducing:



"Squishy"
the Stress Ball



"Leah"



"Zach"



CONQUERING

VIRTUAL SPRAWL

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THE LANDS OF THE

CHAOTIC

LEAH!

LOOK! It's the
Virtual Sprawl Monster.
We've lost control of our
Data Center

!

DATA
CENTERS

ZACH!

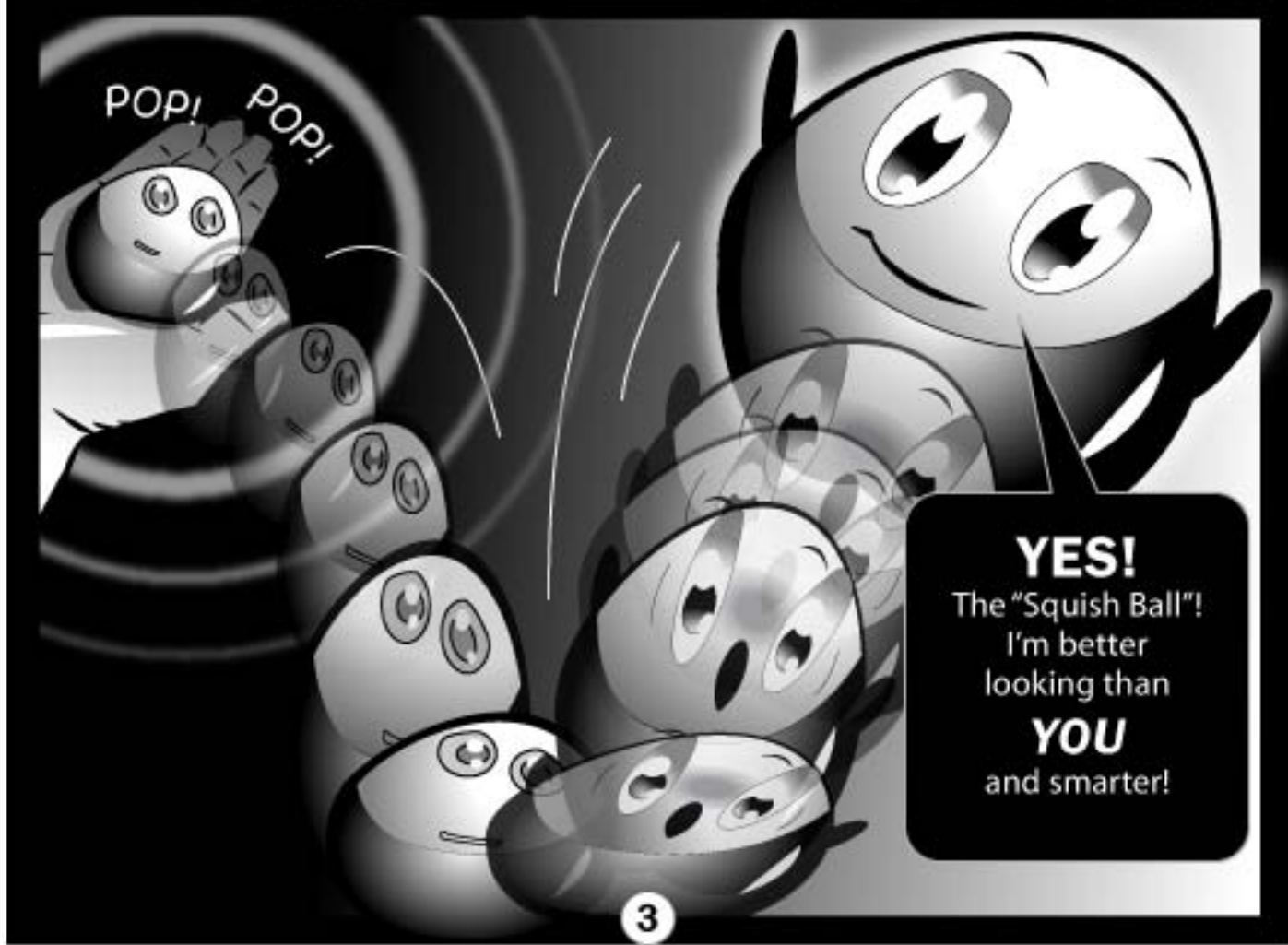
There is **CHAOS** all around us.
We can't keep track of our physical
and virtual machines

!



Maybe...
we should talk to
SQUISHY!

What...?
Talk to the
squish ball
?



POP! POP!

YES!
The "Squish Ball"!
I'm better
looking than
YOU
and smarter!

Virtual Sprawl

Over the last several years, organizations like you've just seen have embraced virtualization to consolidate hardware and server deployments. Although organizations continue to see increased return on investment with virtualization, unplanned growth of virtual machines can eventually get out of control and become IT administrators' worst nightmare.

The problems of **VIRTUAL SPRAWL** include:

► ***Unused and offline virtual machines***

Much of the sprawl with virtual machines is caused by lack of process and best practices for provisioning and managing virtual machines, and it is difficult to track the quantity and states of virtual machines in the organization without an "inventory" for all the online and offline virtual machines in the organization.

Many virtual machines do not get decommissioned when they are no longer needed. These unused virtual machines continue to consume resources on servers without serving any business purpose. A similar problem exists with offline virtual machines. While they do not use system resources, they still take up storage space.

► ***Unsupported virtual machines***

Virtualization technologies have improved significantly in recent years--virtualizing has become easier and faster. This leads to a proliferation of unmanaged and unsupported virtual machines in organizations. Unfortunately the proliferation of self-deployed virtual machines means that users are bypassing the kind of controls that are usually enforced when deploying servers on physical hardware.



Virtual Sprawl cont...

Without having a process and following a set of best practices, virtual machines might be using software not supported by organization's IT team or running unsafe programs that could compromise the security of the network. Unsupported virtual machines also make troubleshooting problems more difficult and thus drive up the support cost for the infrastructure.

▶ **Misallocation of hardware and system resources**

Users don't always know how to optimize hardware and system resources when creating virtual machines; they just want to find available spots and resources on servers. For example, non-mission-critical test servers should not be provisioned on clusters intended to meet high-availability requirements.

▶ **Lack of insight and automation**

Although creating virtual machines is easier than ever, manually managing and patching existing virtual machines can be very time consuming as the number of virtual machines increases over time. Monitoring and reporting are essential to keeping any environment healthy and efficient. Administrators must have better reporting and system insight into both physical and virtual systems running within the organization.



PROPER PROCESSES & PROCEDURES! . . .

Can get
us out
of this
MESS!

LOOK!

The monster
is getting
bigger. How do
we manage our
machines and
system
resources

?

ROAR

DATA
CENTER

The longer you wait
to start planning

PROPER PROCESSES & PROCEDURES!

and to implement them,
the bigger the monster gets
and the worse the impact
on your business !!!



Because
of the
CHAOS!
in your
data center
you are
losing
TIME
and
MONEY
!

This is why you
are always over
budget and
overwhelmed!!

Glad
you
asked
!

But Squishy!
virtualization
is here to stay!
We need to find
out how to make
it work for
us...

What
can **we**
do about
the
virtual
sprawl?

BEST PRACTICES

POLICIES

STANDARDS

I have brought
you to my
PLANNING DOJO
to learn about the
art of planning.

To overcome
the **CHAOS** in
our data center, we
need to properly
plan for the adoption,
deployment, and
operation of physical
and virtual machines
in our
organization

!

With the
proper
PLANNING
we can execute
wise tactics
to manage
our
data center.

BUT!

Before we get too far with our planning let's zoom in on the problem.



Let's look at some obvious signs and risks of virtual sprawl.

OUT-OF-DATE

physical and virtual machines which are not patched properly could be security risks.

10110
0100
11011
101
01
0
1



MISALLOCATION

of your hardware and system resources diminishes your return on infrastructure investments.



NON-STANDARD

configurations and installations mean higher support costs.



Virtual Sprawl is just a symptom.

Like a

RASH!

You can combat a rash directly to provide short-term relief...

...but the rash, like virtual sprawl, will come back if the root causes are not addressed.



The real cause is the lack of insight and automation in the datacenter.

... And this leaves IT administrators like you without any

TIME

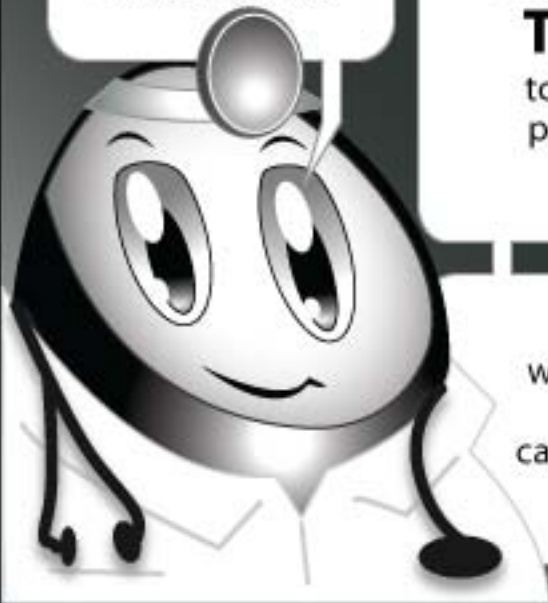
to fix the problem

!



But, don't worry, we can set things right. With a few steps we can get this chaos under

CONTROL !



CAPTURE
service requirements.

Establish an **SLA**
for availability

MANAGE
virtual machine groups

ESTABLISH
profiles and templates for virtual machines

PLAN
your virtual machine library

DESIGN
your self-service portal

Plan a **PATCHING**
strategy

BLUEPRINT FOR SUCCESS

We are on track but the **Virtual Sprawl MONSTER** is still out there ...



Let's look at ...

TECHNOLOGIES AND FEATURES!

...that can help you!

CONTROL SPRAWL !

In System Center
Virtual Machine Manager (VMM)
you can set a

virtual machine quota

in a self-service user
role to limit the number of
virtual machines that a user
or group can deploy.

REDUCE SUPPORT COSTS!

Use ***VMM templates*** to standardize
groups of hardware and software
settings that can be used repeatedly
to create new virtual machines
configured with those settings.



The monster is getting **BIGGER** by the minute! Let's keep working!

I'm creating **QUOTAS** to make sure that we can control the number of virtual machines in our organization!

I'm creating **TEMPLATES** to ensure all machines are built following our documented standards!

Remember you can use **VMM Management Pack** to monitor the health of your virtual machines and hosts. And you can use **Windows PowerShell** to automate many day-to-day management tasks.

Use Templates

You can use templates to enable faster deployment of standardized machines. Using templates ensures the usage of standard hardware and software configurations for your organization. You can create a virtual machine template based on an existing virtual hard disk (VHD), an existing template, or an existing virtual machine that is deployed on a host server.

A VIRTUAL MACHINE TEMPLATE

is a library resource consisting of the following parts:

▶ **Hardware profile**

To define a standard set of hardware settings, you can create a hardware profile and associate it with a template. When you create a new template or create a virtual machine from a template, you can specify the virtual hardware settings or reuse an existing hardware profile from the library. Like operating system profiles, hardware profiles are logical entities that are stored in the database.

▶ **Virtual hard disk**

You can use a generalized VHD from the library or create a virtual hard disk from an existing virtual machine. If the source virtual machine for your template has multiple virtual hard disks, select the disk that contains the operating system. To simplify the generalization process, include virtualization guest services (such as Virtual Machine Additions or Integration Components) in your template.



Use Templates cont...

► **Guest operating system profile**

To use the same product key, administrator password, time zone, and other items in a set of templates, you can create a guest operating system profile and store it in the library. When you create a new template or create a virtual machine from a template, you can specify the settings manually or use an operating system profile associated with your answer files.

Both hardware and guest operating system profiles can be created independently of the template and stored in the System Center Virtual Machine(VMM) Library. Once stored, they can be imported into new templates during the template creation process. Note that after a profile has been imported into a template, there is no ongoing relationship between the template and the profile. Any subsequent changes to the configuration settings in the profile will not be reflected in the templates and vice versa.

Implement Self-Service and Quota

Virtual machine self-service enables the Virtual Machine Manager (VMM) administrator to grant users permission to create and operate their own virtual machines within a controlled environment on a limited group of virtual machine hosts. The VMM administrator creates self-service user roles which determine the scope of the users' actions on their own virtual machines.

To create, operate, and manage their virtual machines, self-service users use the **Virtual Machine Manager Self-Service Portal**. This Web site provides a controlled environment for users in the self-service user role.



Implement Self-Service and Quota cont...

The administrator determines which host groups self-service users can create virtual machines on. When a self-service user creates a virtual machine, the virtual machine is automatically placed on the most suitable host in the host group based on host ratings.

Active Directory users or groups can be added to self-service user roles. The permissions granted to the user role apply to all members of the user group whether they are individuals or groups. Virtual machine owners can be individual users or groups. Under individual ownership, an individual owns, operates, and manages his or her own virtual machines. Under group ownership, virtual machines are owned, operated, and managed by the group.

You can set a virtual machine quota in a self-service user role to limit the number of virtual machines that a user or group can deploy. Quota points are assigned to the templates that self-service users use to create their virtual machines. Quota points apply only to virtual machines on a host. If a self-service user is allowed to store virtual machines, the quota does not apply to virtual machines stored in the library. When the self-service user's quota is reached, the user cannot create any new virtual machines until an existing virtual machine is removed or stored.

Monitor virtual machines and hosts with System Center Virtual Machine Manager 2008 Management Pack

System Center Virtual Machine Manager (VMM) 2008 Management Pack for System Center Operations Manager 2007 monitors availability of all components of VMM 2008 and the availability, health, and performance of all virtual machines and virtual machine hosts that VMM manages. In addition, the VMM 2008 Management Pack also monitors the health of VMware virtual machines running on VMware ESX Servers in VMware Infrastructure 3 (VI3) environments that are managed by using VMM 2008.



Monitor virtual machines and hosts with System Center Virtual Machine Manager 2008 Management Pack . . . cont

The VMM 2008 Management Pack is tightly integrated with VMM 2008 to implement the following features:

- ▶ Comprehensive health monitoring of virtual machines
- ▶ Performance and Resource Optimization (PRO) in VMM
- ▶ VMM reports
- ▶ Diagram views available from the VMM Administrator Console

Automate Provisioning with Windows Powershell

The VMM command shell includes all the standard Windows PowerShell cmdlets and a comprehensive set of cmdlets that are designed specifically for VMM. You can use standard Windows PowerShell cmdlets together with VMM cmdlets to manage tasks in a VMM environment, including the following actions:

- ▶ Adding and working with virtual machine hosts and host groups
- ▶ Adding the VMM library and maintaining the resources that it stores
- ▶ Creating and working with virtual machines that are deployed on a host or that are stored in the library
- ▶ Managing the virtual machine environment
- ▶ Creating virtual machine checkpoints
- ▶ Backing up and restoring the VMM database





LET'S
START
THE
ROLLOUT
!

PROCEDURES

PROPER
PROCESSES



LET'S END THIS!

OPERATIONS
PLAN

SLA

FOR
AVAILABILITY

DEPLOYMENT
PLAN

SERVICE
REQUIREMENTS

Say good bye to **CHAOS!**



OPERATIONS
PLAN

DEPLOYMENT
PLAN

SERVICE
REQUIREMENTS

SLA
FOR
AVAILABILITY



Coming soon!
Live Migration





Scenario Writers: Morris Brown,
Danny Huang, Mike Riches

Storyboards and Illustration: Robert Massa

Art Director: Steve Godfrey

Special Thanks: Kathy Alley, Brooke Chapman,
Lewis Curtis, Paul Despe, Don Glover,
Jessie Hausner, Susan Hill, Paul Kimm,
Omar Kouatly, Jesse Miller, Tyson Nevil,
Don Nickens, Cynthia Redine, Jason Sacks

Conquer the *Virtual Sprawl Monster!*

BEST PRACTICES

POLICIES

STANDARDS



I have brought you to my **PLANNING DOJO** to learn about the art of planning.

Pursuing a server virtualization initiative was one of the smartest moves Leah and Zach could have made. But now they have a problem in their datacenter. They've created a management nightmare in the form of the Virtual Sprawl monster. They can't keep track of their computers and virtual machines and have no way to manage them. **Do** they know which computers and virtual machines are out of date? **Do** they have security risks? **Do** they have idle resources?

Together with Leah and Zach, you will learn how to:

- Identify the symptoms of virtual sprawl
- Control virtual sprawl by planning and implementing the proper processes and procedures
- Use product features to help manage your virtual machine infrastructure

Join Leah, Zach, and their guide Squishy as they learn everything they need to know during their adventures in Conquering Virtual Sprawl.

