



SAS282 - Useful Tips for Building Your Own SAS® Cloud

Peter Villiers, Manager in Research and Development – Cloud Technologies

Potential
of One

Power
of
All

Everyone has heard about SAS® Cloud. Now come learn how you can build and manage your own cloud using the same SAS® virtual application (vApp) technology.

Items to Cover

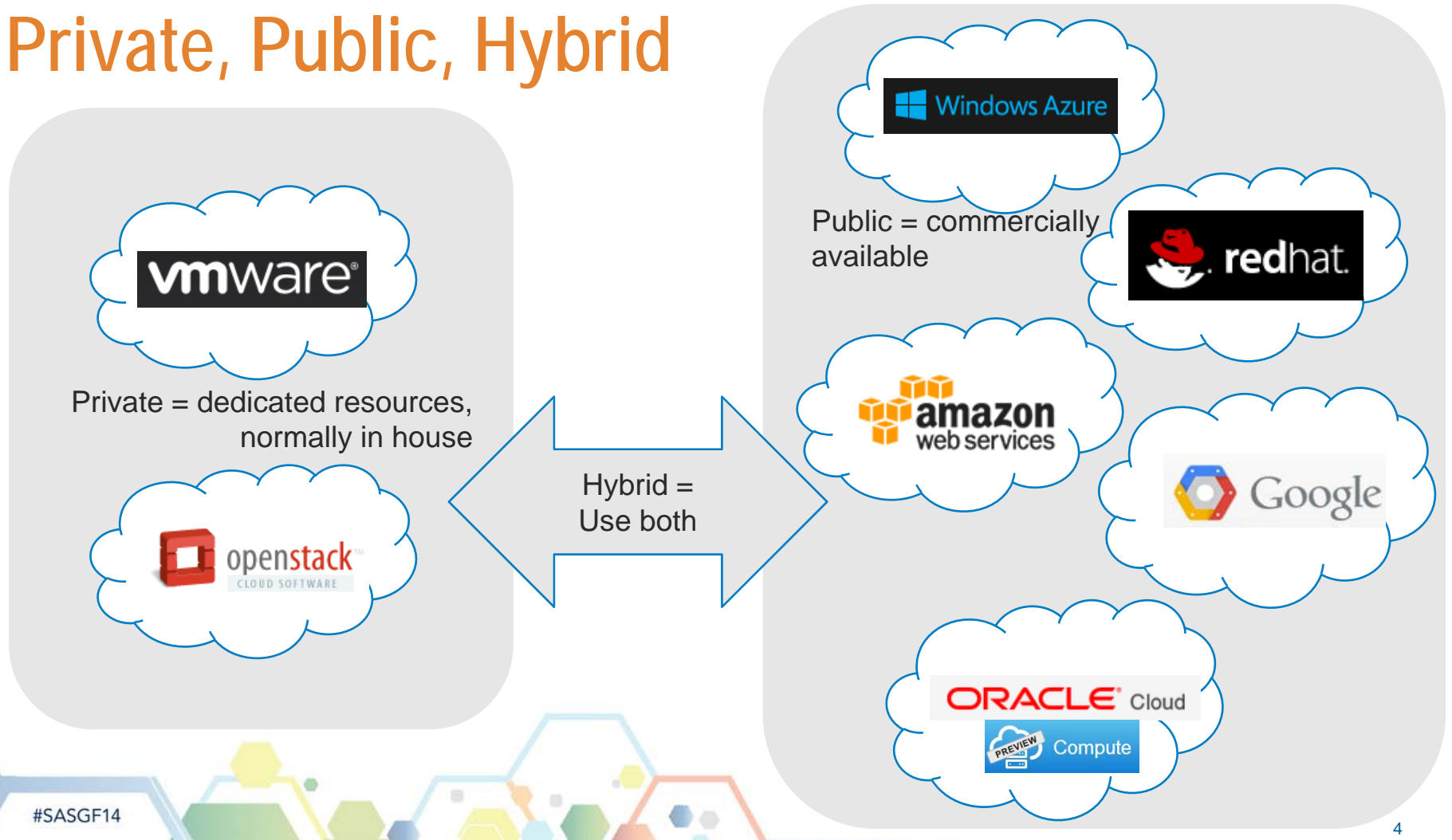
- What does “cloud deployment” mean?
- Challenges to building your own cloud
- Things you can do to make your life easier
- What SAS is doing to help even more



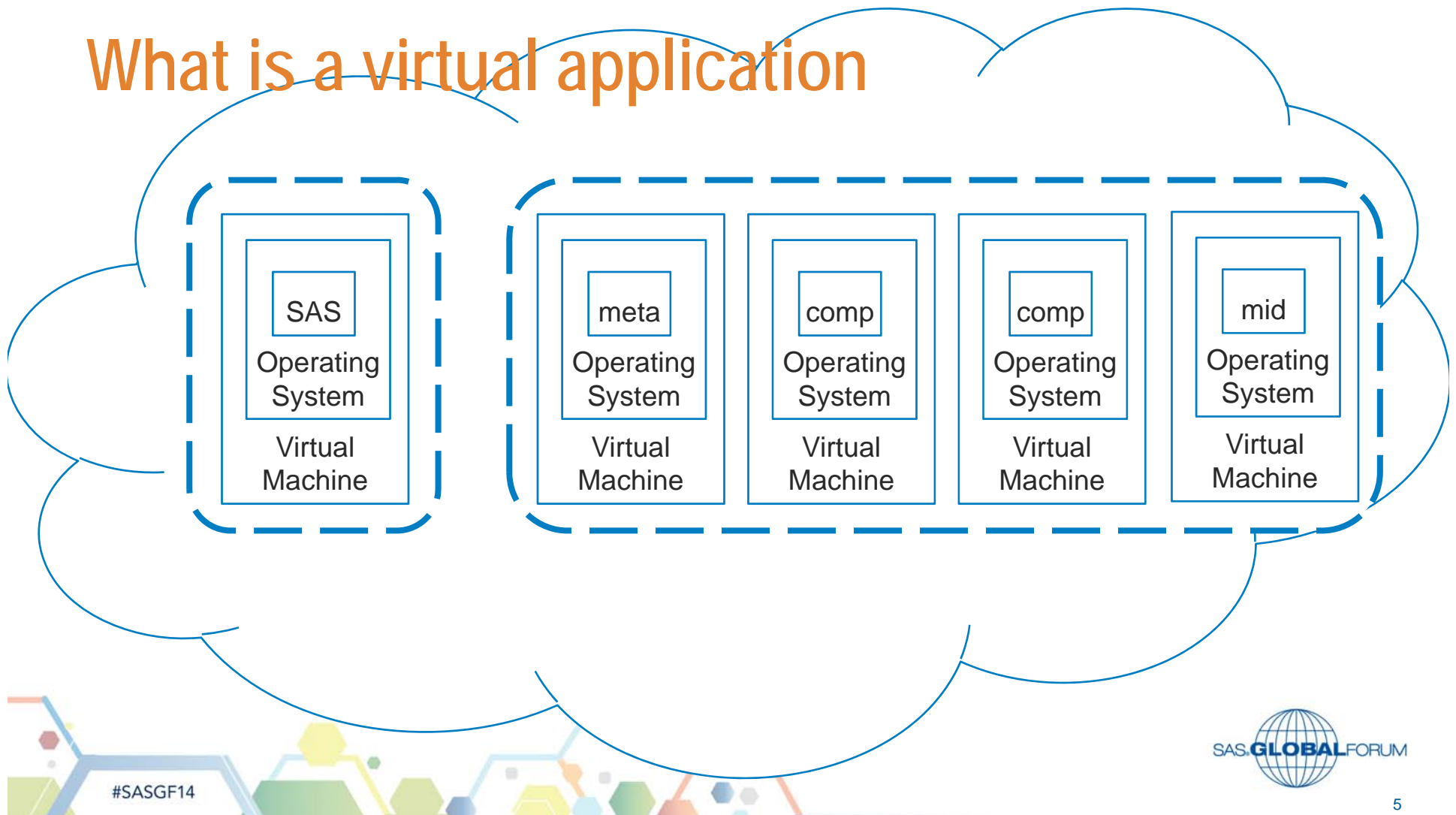
What is a Cloud?



Private, Public, Hybrid



What is a virtual application



Challenges

- Individual machines may go down or even disappear entirely.
- Network connectivity to an entire [area] may be lost.

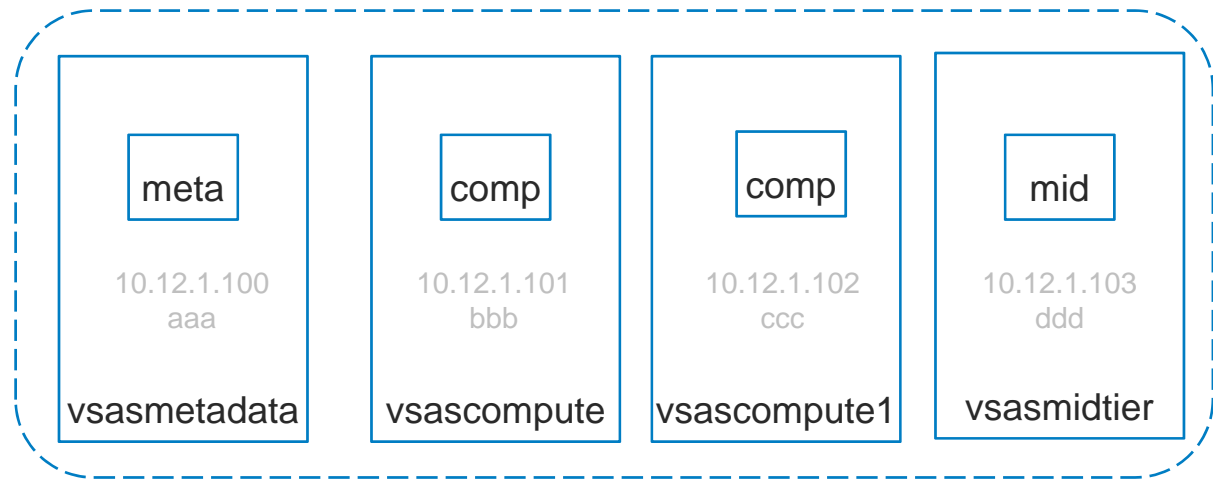


Tip #1: Use “abstract” host names

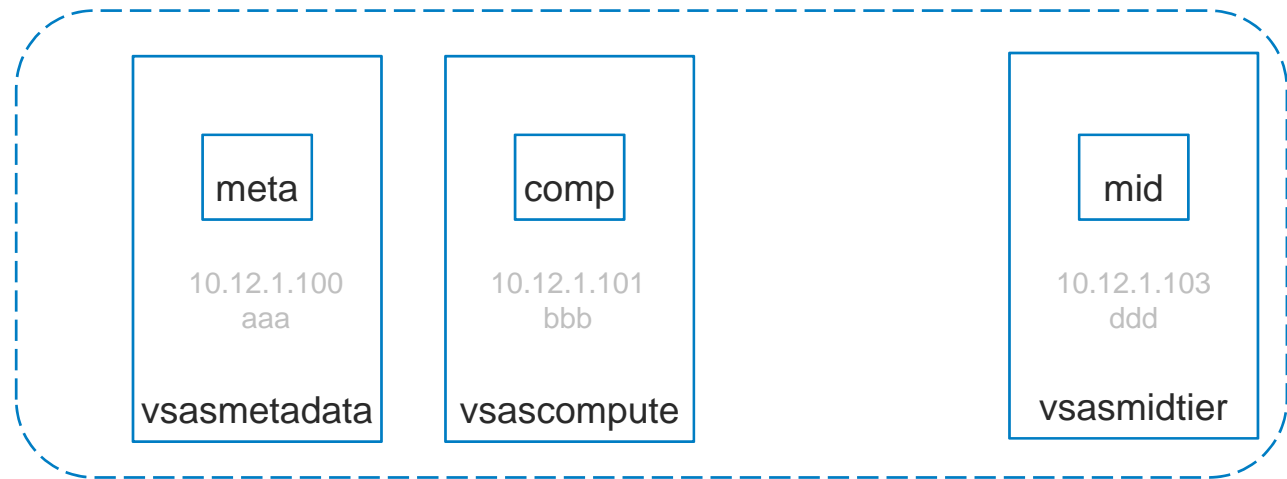
- When doing the SAS installation, don't use the “real” hostname.
- Edit the hosts file and create “role-based” hostnames:
 - Metadata = vsasmetadata.vapps.sas.com vsasmetadata
 - Mid tier = vsasmidtier.vapps.sas.com vsasmidtier
 - Workspace server = vsascompute.vapps.sas.com vsascompute



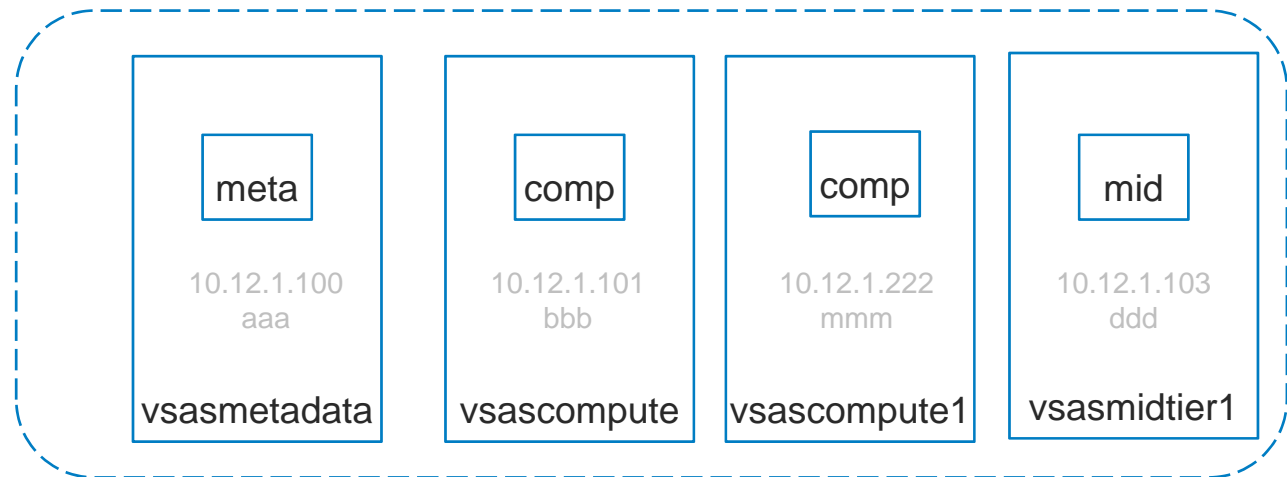
Tip #1: Use “abstract” hostnames



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Tip #1: Use “abstract” hostnames

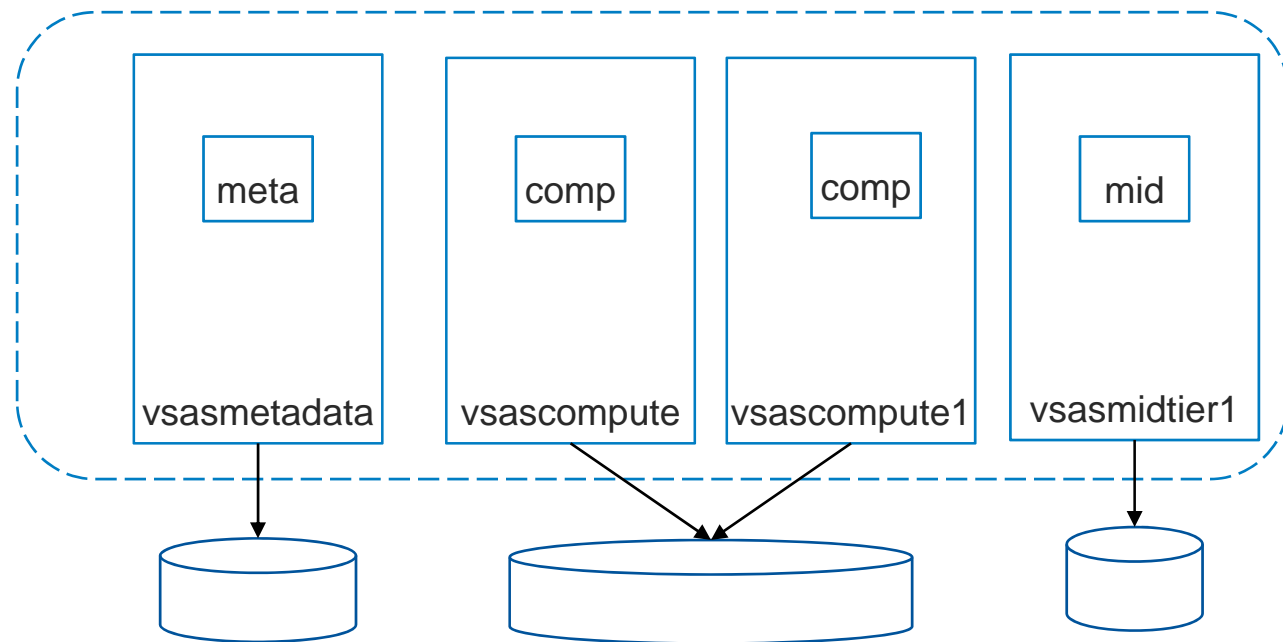


Tip #2: Keep the runtime data separated from the installed software.

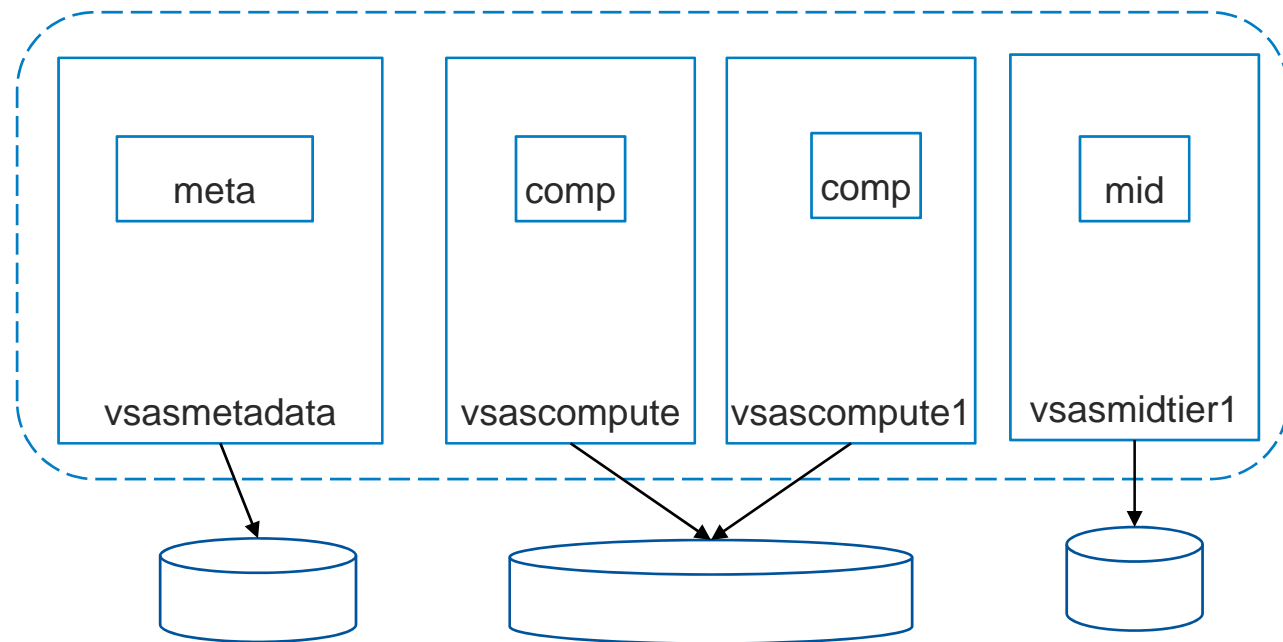
- Scenarios:
 - If a cloud-based machine fails, sometimes it can take the disk with it.
 - You may want to increase the virtual hardware used by a virtual machine.
 - » Vmware allows this to happen using the same virtual machine.
 - » Amazon requires a new machine to be started.



Tip #2: Keep the runtime data separated from the installed software



Tip #2: Keep the runtime data separated from the installed software



Tip #3: Be able to recreate the initial VM image quickly

- Foundation for tips #1 and #2.
- Try to treat the installation separate from the initial deployment. Think of initial setup like your first disaster recovery with clean data.
- Two approaches:
 - Create a full virtual machine disk with everything on it.
 - Use a base image and quickly layer on the pre-reqs and application software.



Tip #3:

The screenshot shows the AWS Management Console interface. The left sidebar contains navigation links for EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, NETWORK & SECURITY, and AUTO SCALING. The main content area displays the 'AMIs' page with a search filter set to 'grid'. The table lists 16 AMIs, all of which are private and available. The first AMI is highlighted, and its details are shown below the table.

Name	AMI Name	AMI ID	Source	Owner	Visibility	Status
<input checked="" type="checkbox"/>	vApp-grid-3.gridmanager_Development-201403231007_16753-5688f...	ami-850f1bec	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridmanager_Development-201403241013_16859-ad3c...	ami-e3effb8a	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridmanager_QA-201403172051_15954-ca755013	ami-ddbdb6b4	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridmanager_QA-201403201808_16425-02d706da	ami-430c192a	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridnode_Development-201403201013_16358-70c804a8	ami-056f7a6c	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridnode_Development-201403211011_16531-2b58f1f3	ami-97c7d2fe	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridnode_QA-201403172045_15952-27f4aefe	ami-5fbd6b36	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.gridnode_QA-201403211555_16428-173687cf	ami-37fde85e	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.master_Development-201403220956_16639-4460f12c	ami-7b544012	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.master_Development-201403230958_16752-8f403957	ami-990e1af0	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.master_QA-201403172032_15947-3ba9f3e2	ami-e9beb580	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.master_QA-201403211548_16426-6040f1b8	ami-69fde800	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.metadata_Development-201403221004_16646-651f8ebd	ami-8d5440e4	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.metadata_Development-201403241010_16858-41240499	ami-31effb58	675450633870/v...	675450633870	Private	available
<input type="checkbox"/>	vApp-grid-3.metadata_QA-201403172059_15949-41557098	ami-5bbcb732	675450633870/v...	675450633870	Private	available

Image: ami-850f1bec

Tip #3:

EC2 Management Console

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:ami=ami-850f1bec

Services Edit Peter Villiers N. Virginia Help

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Tag Instance 6. Configure Security Group 7. Review

Step 2: Choose an Instance Type

	Size	ECUs ⓘ	vCPUs ⓘ	Memory (GiB)	Instance Storage (GB) ⓘ	EBS-Optimized Available ⓘ	Network Performance ⓘ
General purpose	t1.micro	up to 2	1	0.613	EBS only	-	Very Low
Memory optimized	m1.small	1	1	1.7	1 x 160	-	Low
Storage optimized	m1.medium	2	1	3.7	1 x 410	-	Moderate
Compute optimized	m1.large	4	2	7.5	2 x 420	Yes	Moderate
	m1.xlarge	8	4	15	4 x 420	Yes	High
	m3.medium	3	1	3.75	1 x 4 (SSD)	-	Moderate
	m3.large	6.5	2	7.5	1 x 32 (SSD)	-	Moderate
	m3.xlarge	13	4	15	2 x 40 (SSD)	Yes	High
	m3.2xlarge	26	8	30	2 x 80 (SSD)	Yes	High
	m2.xlarge	6.5	2	17.1	1 x 420	-	Moderate
	m2.2xlarge	13	4	34.2	1 x 850	Yes	Moderate
	m2.4xlarge	26	8	68.4	2 x 840	Yes	High

Cancel Previous Review and Launch Next: Configure Instance Details

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Tip #3:

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

⚠ Improve your instance's security. Your security group, launch-wizard-1, is open to the world.

Your instance may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details [Edit AMI](#)

vApp-grid-3.gridmanager_Development-201403231007_16753-5688f18e - ami-850f1bec
vApp-grid-3.gridmanager_Development-201403231007_16753-5688f18e
Root Device Type: ebs Virtualization type: paravirtual

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t1.micro	up to 2	1	0.613	EBS only	-	Very Low

Security Groups [Edit security groups](#)

Security group name launch-wizard-1
Description launch-wizard-1 created on Monday, March 24, 2014 12:39:56 PM UTC-4

Type	Protocol	Port Range	Source
------	----------	------------	--------

[Cancel](#) [Previous](#) [Launch](#)

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Tip #4: Understand your risk

EC2 Management Console

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:ami=ami-850f1bec

Services Edit Peter Villiers N. Virginia Help

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AMI Details [Edit AMI](#)

vApp-grid-3.gridmanager_Development-201403231007_16753-5688f18e
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Instance Type [Edit instance type](#)

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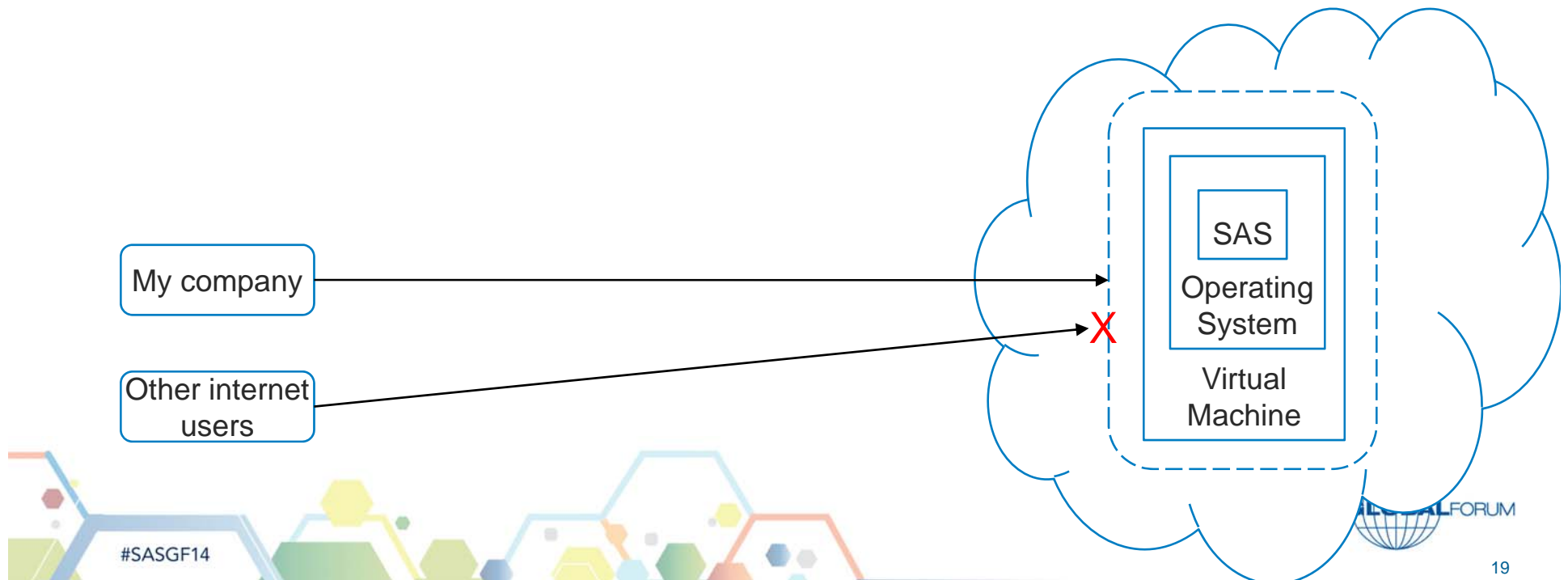
Type	Protocol	Port Range	Source
------	----------	------------	--------

[Cancel](#) [Previous](#) [Launch](#)

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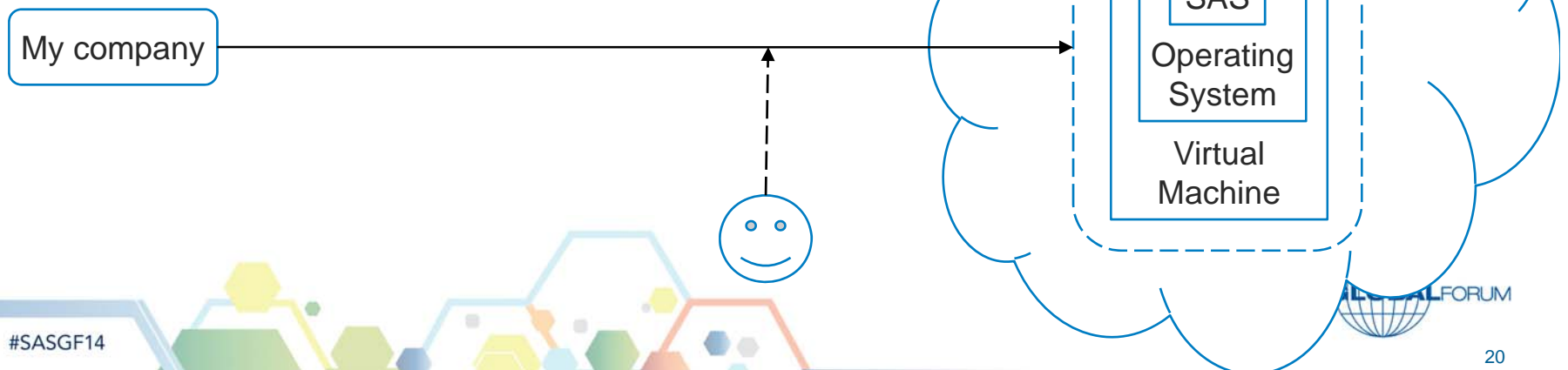
Tip #4: Understand your risk

- With public clouds:
 - Relatively easy to make services and machines available to the internet.



Tip #4: Understand your risk

- With public clouds:
 - Relatively easy to make services and machines available to the internet.
 - Need to understand how the communication is travelling from your local machine to the service in question – is it secure?



SAS Cloud

CORE THEMES

Enable

Self-service
Easy Access

Simplify

Manage and Maintain SAS in
the Cloud

Innovate

Build and share
applications
in the Cloud

Deployment Choices

- Private cloud
- Public cloud
- Hybrid cloud

SAS 9.4

#SASGF14



SAS Cloud

ENABLING TECHNOLOGY

Enable

Simplify

Innovate

SAS App Central

SAS
vApp
Services

SAS vApps

SAS
App
Engine

SAS 9.4

#SASGF14





Washington, D.C.

March 23–26, 2014

