

# Cloud Enabled Process Engineering

Power To The Cloud

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1

**Definitions**

2

**Drivers**

3

**Concerns & Drawbacks**

4

**A Solution**

5

**SimSci in the Cloud**

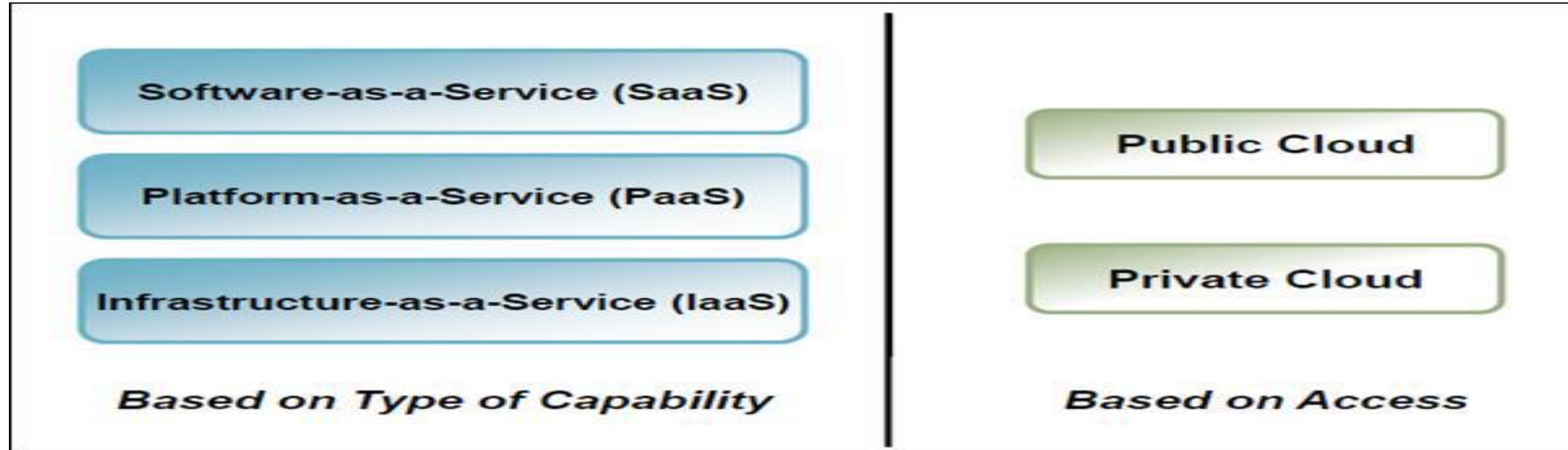
6

**SimCentral® and the Cloud**

7

**Conclusion**

# Briefly Defining the “Cloud”

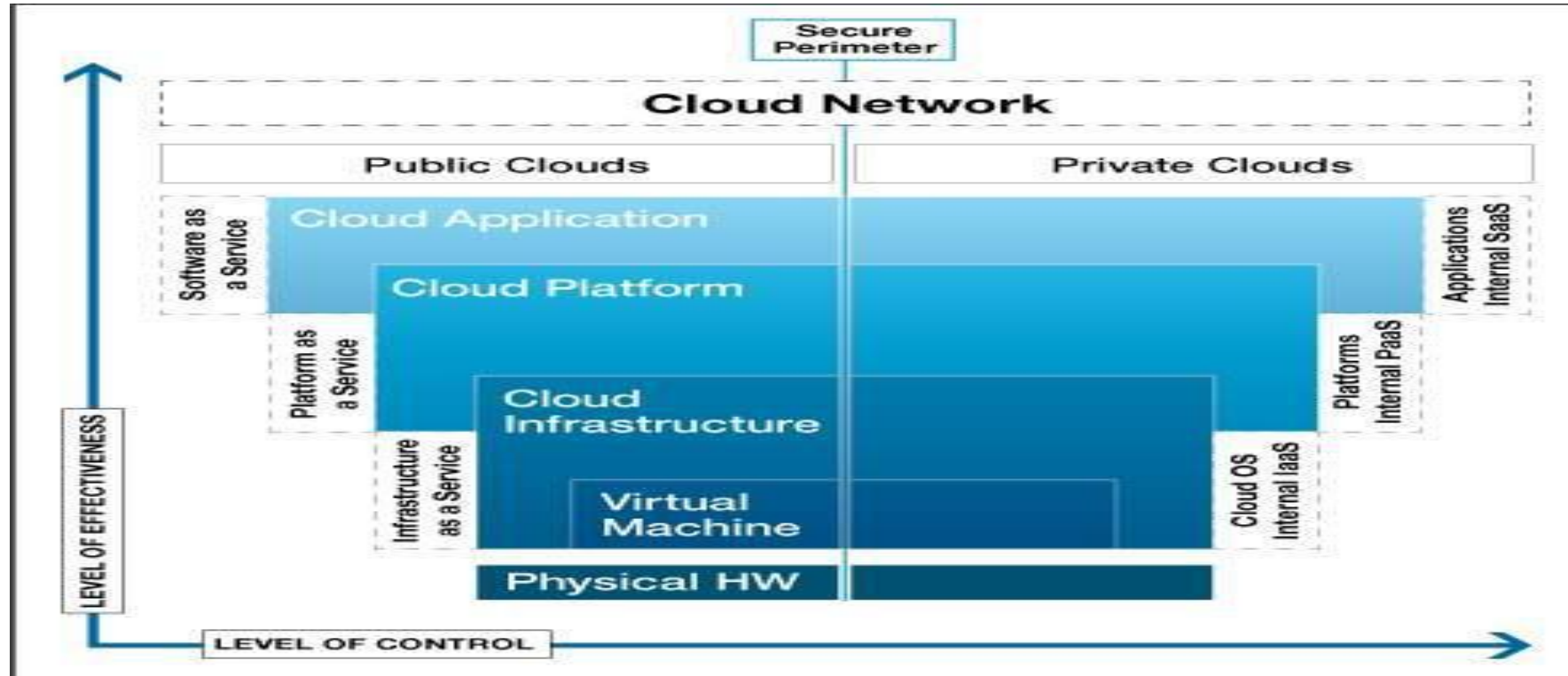


**SaaS** is a software licensing and delivery model. Software is licensed on a subscription basis.

**PaaS** is a cloud service that provides a platform allowing customers to develop, run and manage applications on a cloud infrastructure

**IaaS** offers computers – physical or (more often) virtual machines – and other resources (management tools) that are scalable and/or on demand.

# “The Cloud”



# Examples



# Businesses Drivers

- Better interoperability between consultants and sub-consultants
- Shifted responsibility for data and programs
- Global access and participatory worldwide communication
- Software updates affect all users automatically and simultaneously
- Reduced Overhead – By eliminating the need for IT-techs, servers and storage devices – less energy on excess computing sitting idle



# Engineering Advantages

- Meets the Innovation Imperative – change or stagnate
- Quest for Simplicity – version control pain
- Structure Out of Chaos – hard drive rebuild nightmare
- Netbook vs Anvil – As number crunching shifts to virtual machines, we will only need a browser (or thin client)
- Subscription based – no IT argument to get the latest features



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# Some Concerns of Process Engineers

“I think security would be a significant hurdle.”

“A ‘small’ cloud takes away most of the benefit of the cloud in the first place.”

Darryl Seillier – Valero

“We use virtual servers for many of our applications. We just spec out a server and a virtual one is created for us that meets those specifications. Data security is a concern beyond that.”

Justin Westmoreland – BASF

“I would think safety and security are big issues to overcome for the cloud use in engineering.”

Dr. Peter Krizan - OMV



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# Drawbacks Summary

- **Security concerns.** Hackers have entered the "most secure" of all areas like governments and research centers.
- **People.** Assuming good IT people that are both knowledgeable and trustworthy, your information might be safer in your own building.
- **Access** to the files and programs are dependent on internet access of the client and the host.  
*It only takes a heavy storm, remember March 9<sup>th</sup>.*
- **Downsize** your technology. You no longer need expensive desktop workstations if you can get away with a netbook or laptop.  
*BUT Older software or data might be needed in the future. Since you have scrapped all the desktops, this information may not be accessible anymore.*

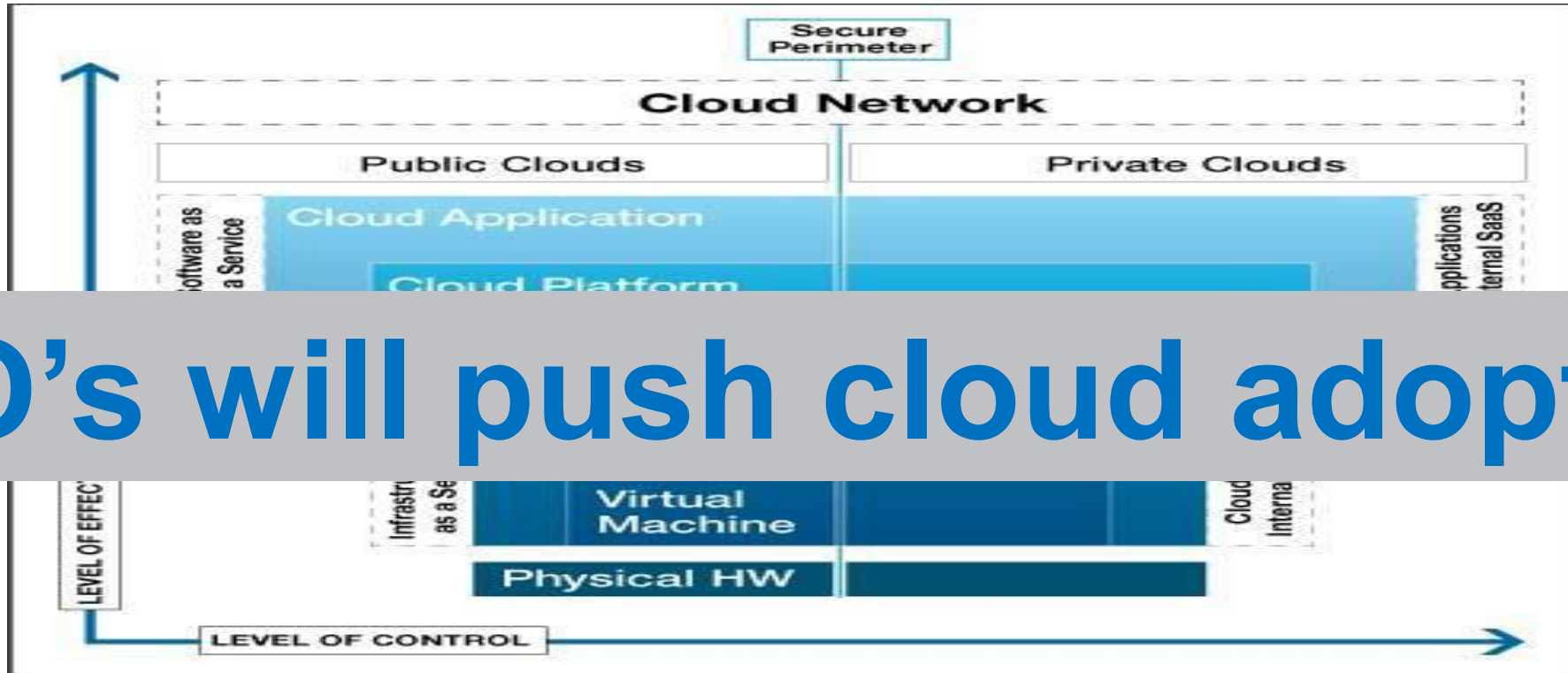


One place to hack or One place to defend

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# One Solution: Hybrid Clouds – Do Lost Benefits Outweigh Security Gains?



**CIO's will push cloud adoption**

“Whatever you do, don’t call it a “public” cloud, they’ll never accept that. Call it a “shared” cloud. Perception matters.”

Jean-Baptiste Masse

# SimSci and the Cloud

## Today

- All development is done on the cloud
- All Q&A battery of tests on the cloud
- Can run our products via VM
- We host demo's on the cloud

## Tomorrow

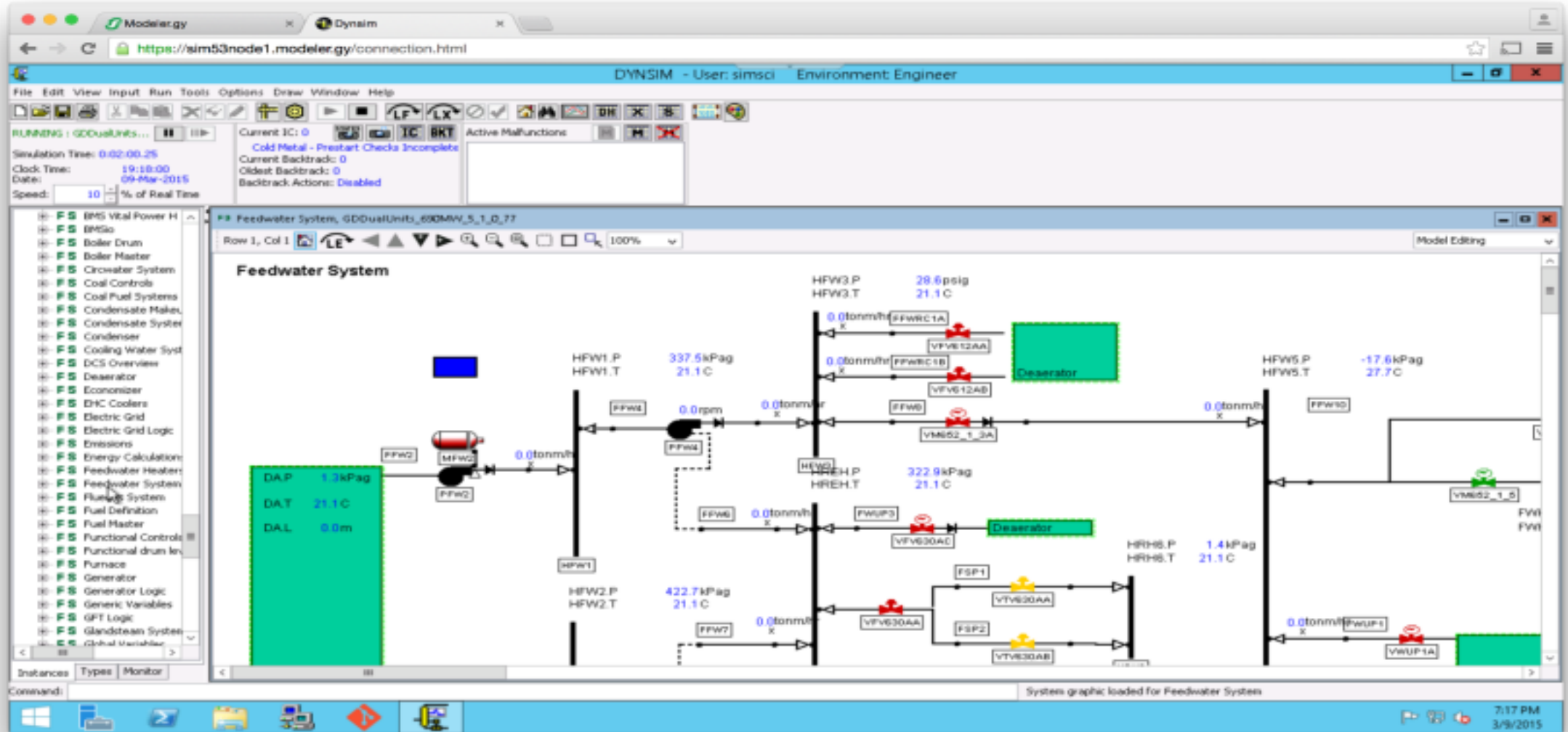
- Simulation as a service
- Training as a service
- SimCentral with full cloud capabilities

You're talking  
We're listening

# S<sub>(i)</sub>aaS User View – Portal entry point



# S<sub>(i)</sub>aaS User View



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# SimCentral Cloud Technology Drivers

Cloud Driver	Explanation	Why Important
<b>Easy to Access</b>	Easy for users to access software without IT intervention.	Many companies do not allow users to install new software without IT support.
<b>Easy to Buy</b>	Simple self service online purchase mechanism.	Allows small companies to purchase the same software as large companies.
<b>Custom Libraries</b>	Ability to serve industry or market specific simulation needs	While not a cloud feature, placed in a cloud custom libraries allows expansion into new opportunities for simulation.
<b>Computing Power</b>	Make use of multiple computer cores	Can run 1000 cases at once or one case 1000 times faster.
<b>Evergreen</b>	On public cloud, always up to date with the latest version.	Users or IT do not have to install new versions of the software.
<b>Standard Deployment</b>	On a private cloud, all users are on the same version.	An organization can control which versions are deployed.

# Conclusions

- Cloud computing IS the **future** for software; including simulation.
- SimSci is very **aware** when it comes to the cloud. We are listening to our customers to develop the **RIGHT** plan to utilize it's advantages and avoid it's disadvantages
- There are definite **advantages** to cloud computing for process engineering. There are security issues to be overcome and new issues to be discovered. It's not yet time to give up "on-premise" software
- SimCentral is **designed** with a full cloud deployment to support the future

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