Relevant advances in Toiletry and I.T. ::
From Squat Pots to Cloud Bots - Waste
Management Through Security Automation

Commode Computing


THIS PRESENTATION HAS BEEN RATED
PG-13 PARENTS STRONGLY CAUTIONED
Some Material May Be Inappropriate for Children Under 13
FOR IRREVERENT HUMOR THROUGHOUT
BY THE
CLASSIFICATION AND RATING ADMINISTRATION

WARNING

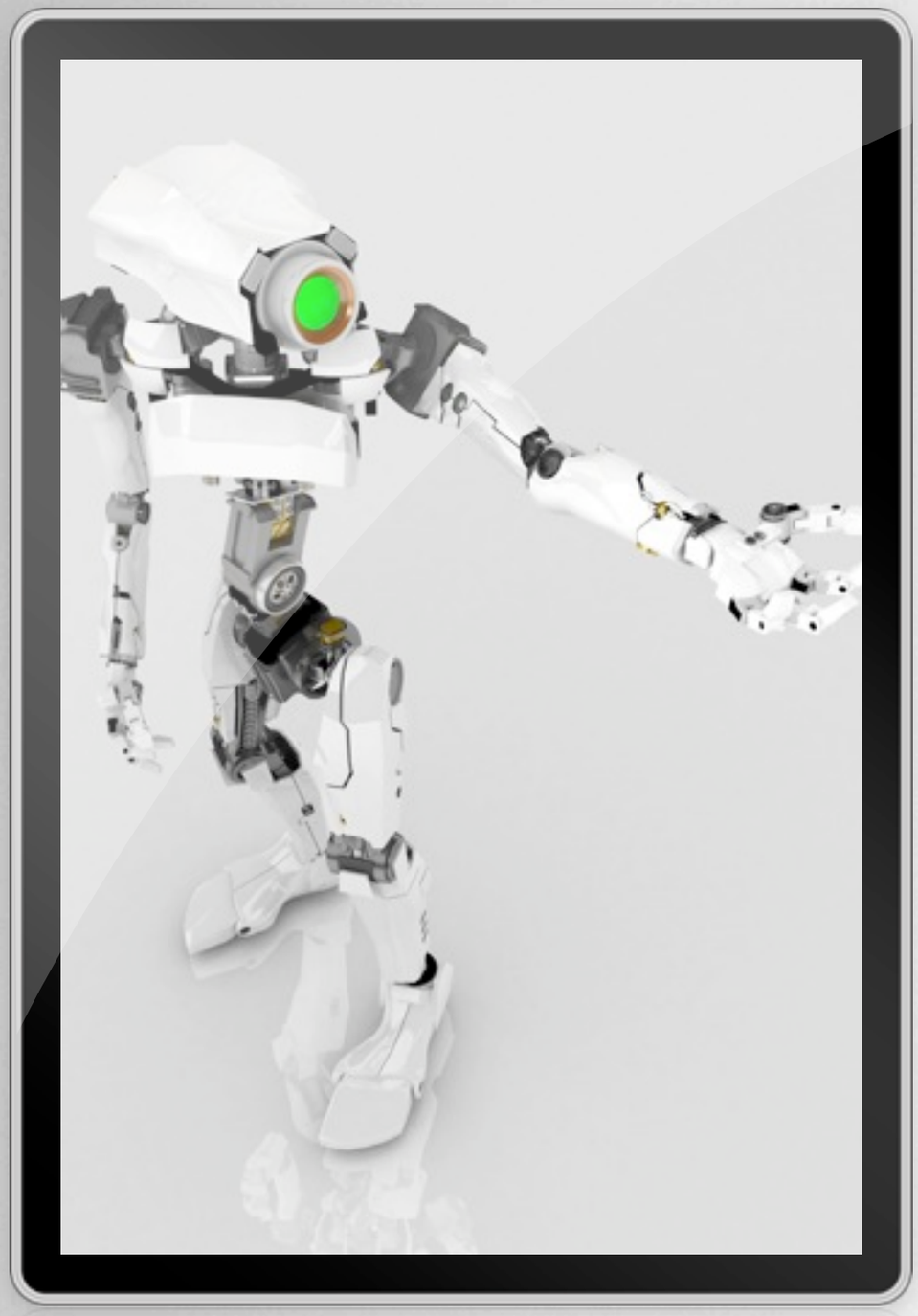
Swedish nuclear reactor fire was caused by forgotten vacuum cleaner

Save this story to read later

Tweet 3 Recommend 9 people recommend t

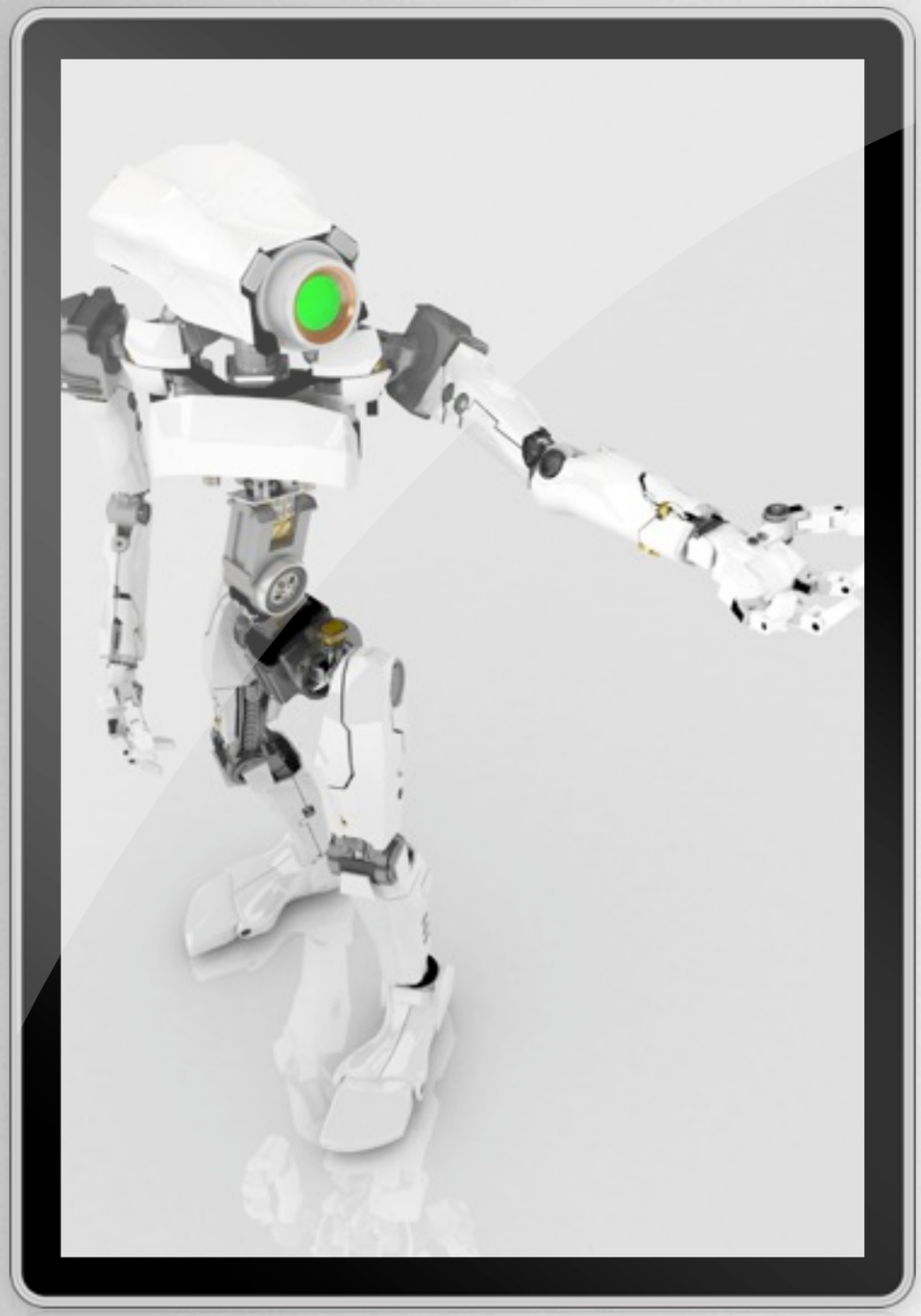
A FORGOTTEN vacuum cleaner was the cause of a fire i
a nuclear reactor near the western city of Gothenburg
which cost the plant's operator hundreds of millions of
dollars, Swedish television channel STV reported.

That Sucks!



A public utility which utilizes common protocols (such as IP[ee]) to provide Sanitation as a Service utilizing multi-tenancy with shared infrastructure & plumbing abstracted from the content which it transports

Commode Computing?



In short, it's harnessing other people's plumbing to get your crap from one place to another without flushing away your resources

Commode Computing?

Is What We'll End Up With Up With If Our Agile, Flexible and Elastic Resource Pools Are Ultimately Constrained By Manually-Operated or a simplistic monoculture of Crappy Security Tools

Commode Computing

Notable Moments In Toiletry

Or...
Innovation
In
Sanitation

Individual Drainage Systems
2500 B.C.

Mohenjo-Daro had a highly-developed drainage system where waste water from each house flowed into a main drain.

2490 B.C. | 2480 B.C. | 2470 B.C. | 2460 B.C. | 2450 B.C. | 2440 B.C. | 2430 B.C. | 2420 B.C. | 2410 B.C. | 2400 B.C. | 2390 B.C. | 2380 B.C.

Individual Drainage Systems
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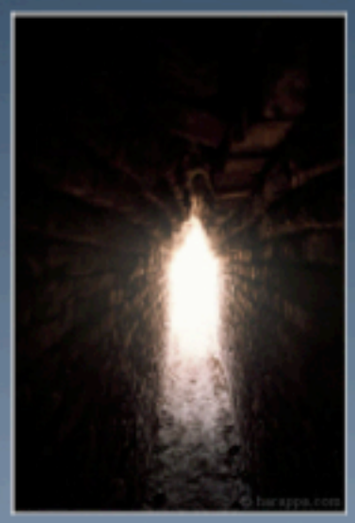

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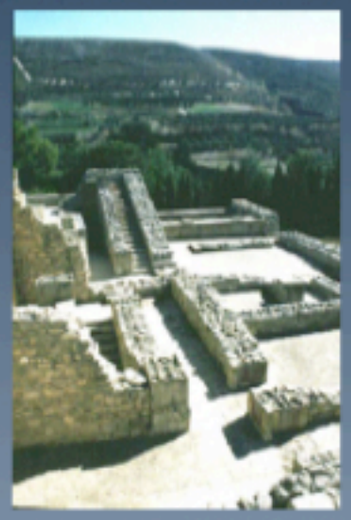
2490 B.C.
2480 B.C.
2470 B.C.

Minoans use drainage systems
1700 B.C.

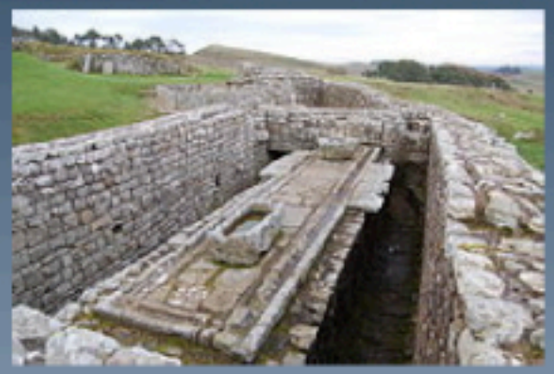


Minoan Palace of Knossos on the isle of Crete featured four separate drainage systems that emptied into the great sewers constructed of stone.

B.C.
1700 B.C.
1690 B.C.
1680 B.C.
1670 B.C.

Latrines and Sewers In Ancient Rome

750 B.C.



The Romans had a complex system of sewers covered by stones, much like modern sewers. Waste flushed from the toilets or latrines flowed through a central channel into the main sewage system and into a nearby river or stream.

750 B.C.

740 B.C.

730 B.C.

720 B.C.

710 B.C.

Dejecti Effusive Act

500 B.C.

Law passed to protect innocent bystanders from assault by wastes thrown into the street. The violator was forced to pay damages to whomever his waste hit, if that person sustained an injury. This law was only enforced in the daytime

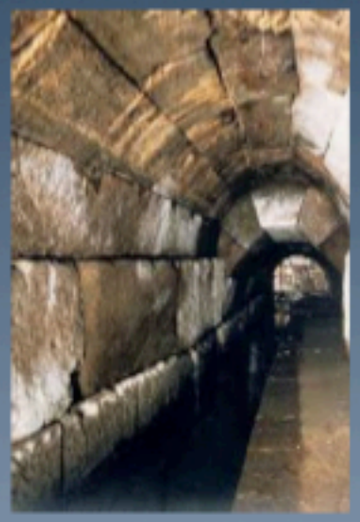
500 B.C.

490 B.C.

480 B.C.

470 B.C.

Roman Cloaca Enclosed as a Tunnel
33 B.C.



Under the emperor Augustus, the Romans enclosed the Cloaca Maxima, creating one large sewer tunnel

40 B.C.
30 B.C.
20 B.C.
10 B.C.
1 A.D.

Public Toilets Take Off
315 A.D.

There were ~150 public toilets installed in Rome

310 A.D.

320 A.D.

330 A.D.

340 A.D.

350 A.D.

Water Closet Invented
1596 A.D.

Sir John Harington invents the “Water Closet” (W.C.) - the original flushing toilet

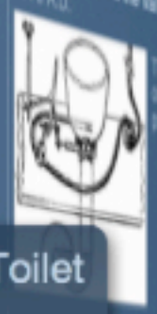
1590 A.D.

1600 A.D.

1610 A.D.

1620 A.D.

Cummings Patents the Valve-Type Toilet
1775 A.D.



The main problem of Harrington's WC was the accumulation of the water disposal. The S-Trap helped solve this problem.

...mah Improves Upon Cummings Design

Becomes the benchmark for toilets for the next 100 years with the addition of the hinge or crank valve which sealed the bowl.

Bronde Invents the First Valve-Type Flush Toilet
1738 A.D.

1730 A.D.

1740 A.D.

1750 A.D.

1760 A.D.

1770 A.D.

1780 A.D.

1790 A.D.

1800 A.D.

1810 A.D.

1820 A.D.

1830 A.D.

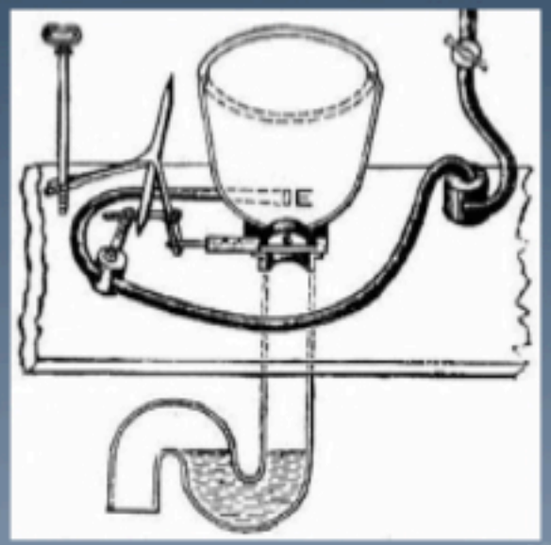
1840 A.D.

1850 A.D.

A.D.

Cummings Patents the Valve-Type Toilet 'S Trap'

1775 A.D.



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Joseph Braman Improves Upon Cummings Design

1778 A.D.

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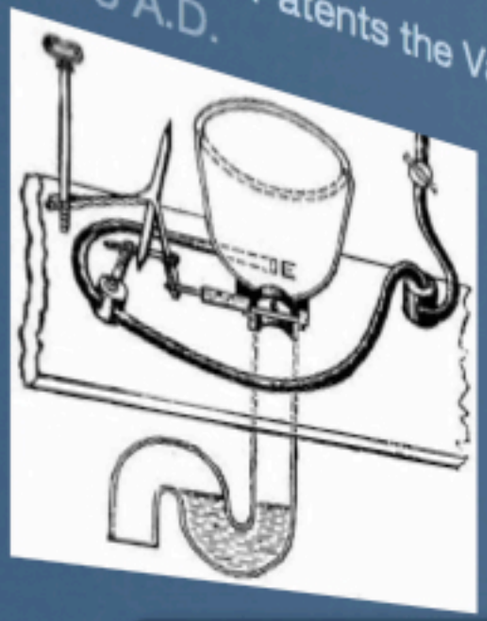
1790 A.D. 1800 A.D. 1810 A.D. 1820 A.D. 1830 A.D. 1840 A.D.

Cummings Patents the Valve-Type Toilet 'S Trap'
1775 A.D.



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1780 A.D.
1790 A.D.
1800 A.D.
1810 A.D.

Cholera In London & Public Health Act

1848 A.D.

14,000 dead in London
55,000 dead throughout the Nation
1848 Public Health Act

The first Public health Act made it compulsory for a fixed “sanitary arrangement” to be included in every new or refurbished household.

Toilet Paper Invented

1857 A.D.

Invented by the American, Joseph Gayetti

Thomas Crapper Sets Up Plumbing Business

1861 A.D.

Thomas Crapper sets up his plumbing business in Chelsea, London at just the right time to take advantage of the forthcoming boom in interest in public health and in

U.S. Patent Office receives over 350 New Toilet Designs

1900 A.D. - 1936 A.D.

1848 A.D.

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1870 A.D.

1880 A.D.

1890 A.D.

1900 A.D.

1910 A.D.

Invented by the American, Joseph Gayetti

First U.S. Chemical Sewage Treatment
1890 A.D.

In the United States, the first sewage treatment plant ... chemical precipitation was built in ... Massachusetts ...

Thomas Crapper Sets Up Plumbing Business
1861 A.D.


THOMAS CRAPPER & CO.'S
SPECIALITIES.

PEDESTAL WASH-DOWN CLOSET.

VALVE CLOSET.

Water Waste Preventer.

50, 51, & 54, MARLBOROUGH ROAD, CHELSEA, LONDON, S.W.

Thomas Crapper sets up his plumbing business in Chelsea, London at just the right time to take advantage of the forthcoming boom in interest in public health and in particular sewage.

1860 A.D.

1870 A.D.

1880 A.D.

1890 A.D.

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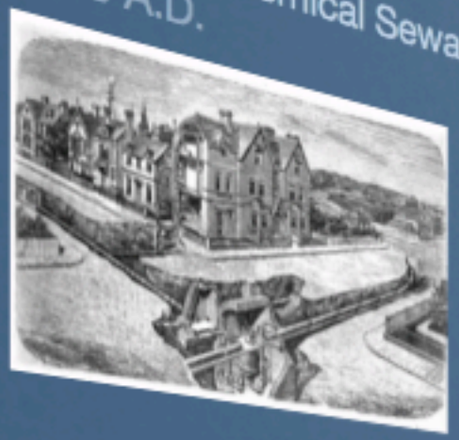
U.S. Patent Office receives over 350 New Toilet Designs
1900 A.D. – 1932 A.D.

1910 A.D.
1920 A.D.
1930 A.D.
1940 A.D.
1950 A.D.

First U.S. Chemical Sewage Treatment

1890 A.D.



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1900 A.D. – 1932 A.D.

1890 A.D.

1900 A.D.

1910 A.D.

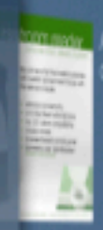
1920 A.D.

1930 A.D.

Toto Neorest 600 Fully Automatic Toilet Introduced
1994 A.D.

This toilet is a throne. The Neorest 600 lifts and lowers the lid for you, heats up your seat, filters away smells, flushes quietly and rinses and blowdries your backside. It sells for $5000.

Yi Tien Electronics - RSStroom Reader
2005 A.D.



All the news that's fit to print and file in the circular cabinet...

Auto Air Hand Dryer
1990 A.D.

Automatic Hand Dryer

Who knew Dyson blew as well as it sucked

Autoflush
1990 A.D.

iPod Dock/Toilet Paper Dispenser
2007 A.D.

New meaning to the words "boom box"

Auto Clean
1992 A.D.

Hybrid Washing Machine/Toilet
2008 A.D.

Let's hope the spin cycle doesn't start automatically.

Yi Tien Bionnorics - RRRoom Reider
2005 A.D.

All the cream that's in the press and in the cocoa collected.

The Dyson Automatic Hand Dryer
2006 A.D.

Who knew Dyson blew as well as it sucked

iPod Dock/Toilet Paper Dispenser
2007 A.D.

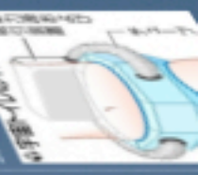
Now moaning to the words "zoom zoo"

Hybrid Washing Machine/Toilet
2008 A.D.

Let's hope the spin cycle doesn't start accidentally...

Wasabi® Japanese Space Toilet
2006 A.D.

I'm sorry Dave, I can't do that.



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Auto Clean
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Auto Faucet
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Wearable Japanese Space Toilet
2009 A.D.

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Automatic Hand Soap Dispenser
1993 A.D.

Tube Free Toilet Paper!
2010 A.D.

Sometimes Low-Tech Wins.

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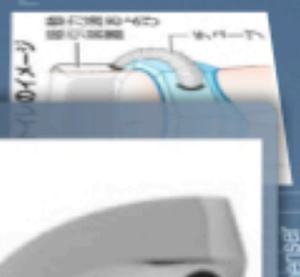

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1993 A.D.

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2010 A.D.

Auto Paper Towel Dispenser
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Sega Introduces Toilets
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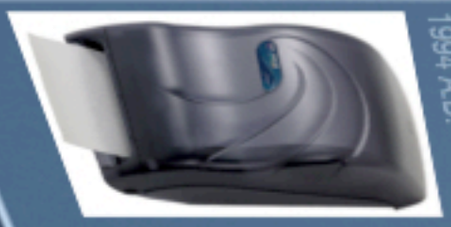

Washing Machine Toilet
2008 A.D.

Let's throw the wash cycle down the toilet.

Wearable Japanese Space Toilet
2009 A.D.

I'm sorry Dave, I can't do that.

Sega Introduces Toilets
2011 A.D.

Advances In Toiletry - Dates Not To Scale (Or Even Necessarily Accurate)

1900 A.D.

2000 A.D.

Automatic Hand Soap Dispenser
1993 A.D.

Auto Paper Towel Dispenser
1994 A.D.

Wearable Japanese Space Toilet
2009 A.D.

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Tube Free Toilet Paper!
2010 A.D.

Sometimes Low-Tech Wins.

Toylets

1980 A.D.

1990 A.D.

2000 A.D.

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and Dryer

Clean
A.D.

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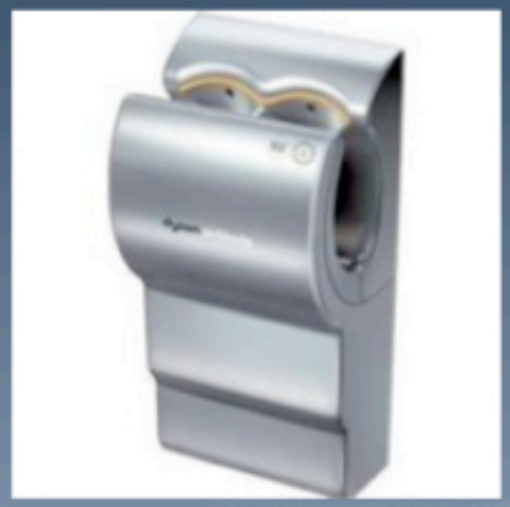

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Hybrid Washing Machine/Toilet
2008 A.D.

Let's hope the spin cycle doesn't start automatically...

...that's fit to print and file in the circular

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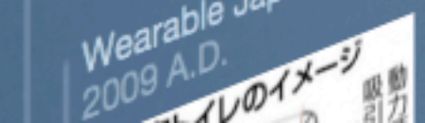

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Clean
A.D.

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be Free Toilet Paper!

Sometimes Low-Tech Wins.

uto Faucet
993 A.D.

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1990 A.D.

2000 A.D.

Advances In Toiletry - Dates Not To Scale (Or Even Necessarily Accurate)

Why has bathroom technology and automation advanced beyond that of IT Security?

Cloud?

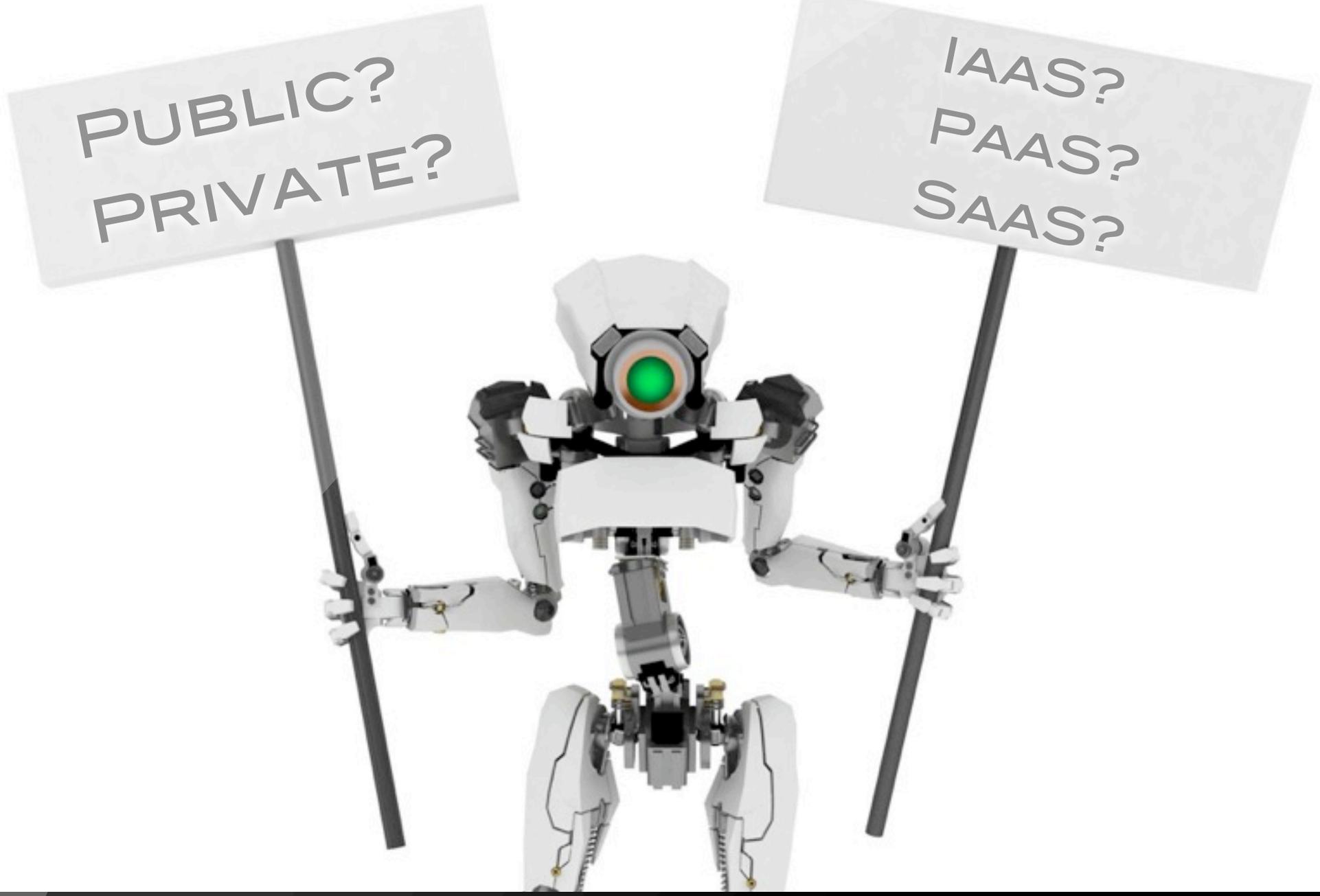
NetAdmins

SysAdmins

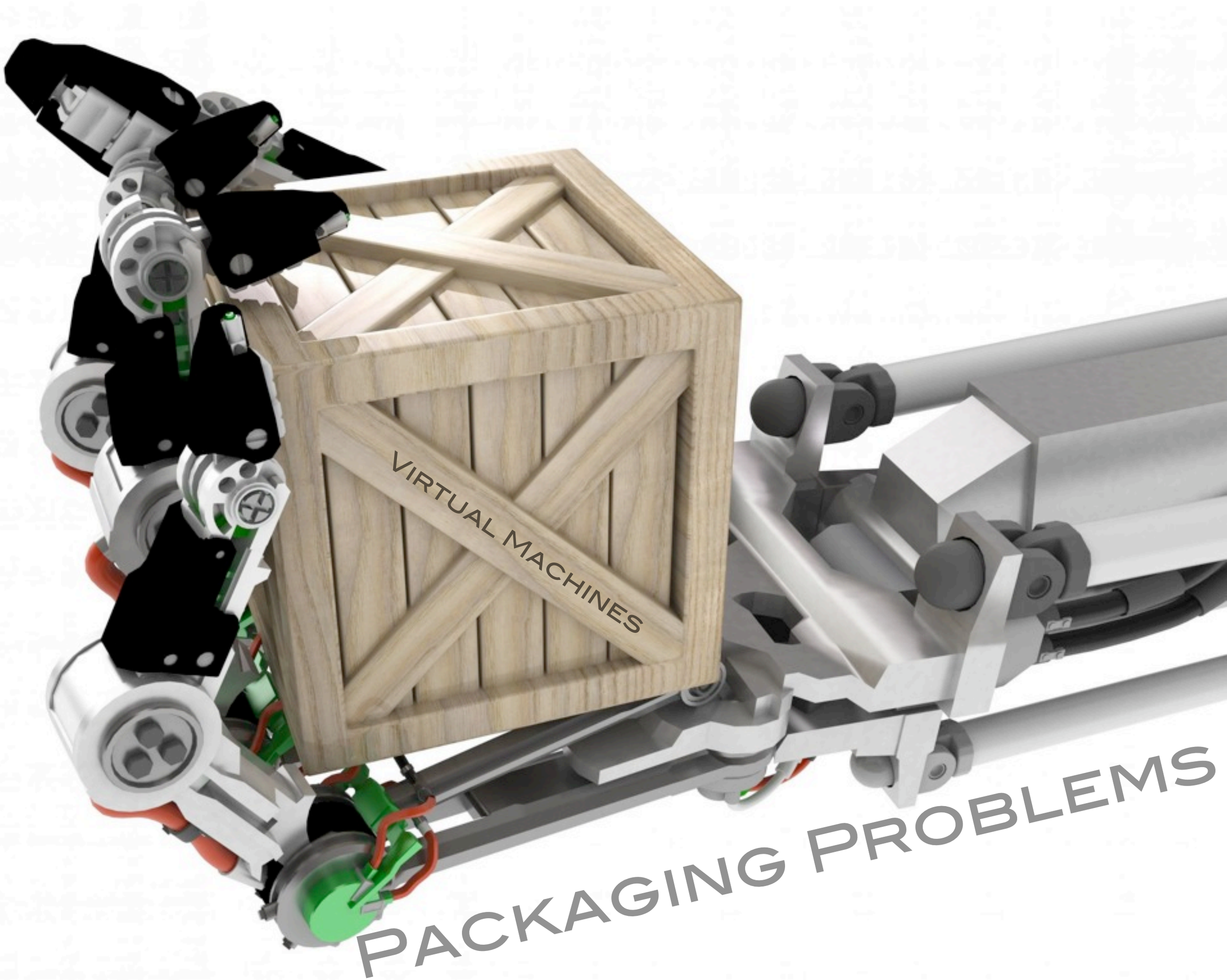
Developers

SecurityOps

RELIABILITY EFFICACY

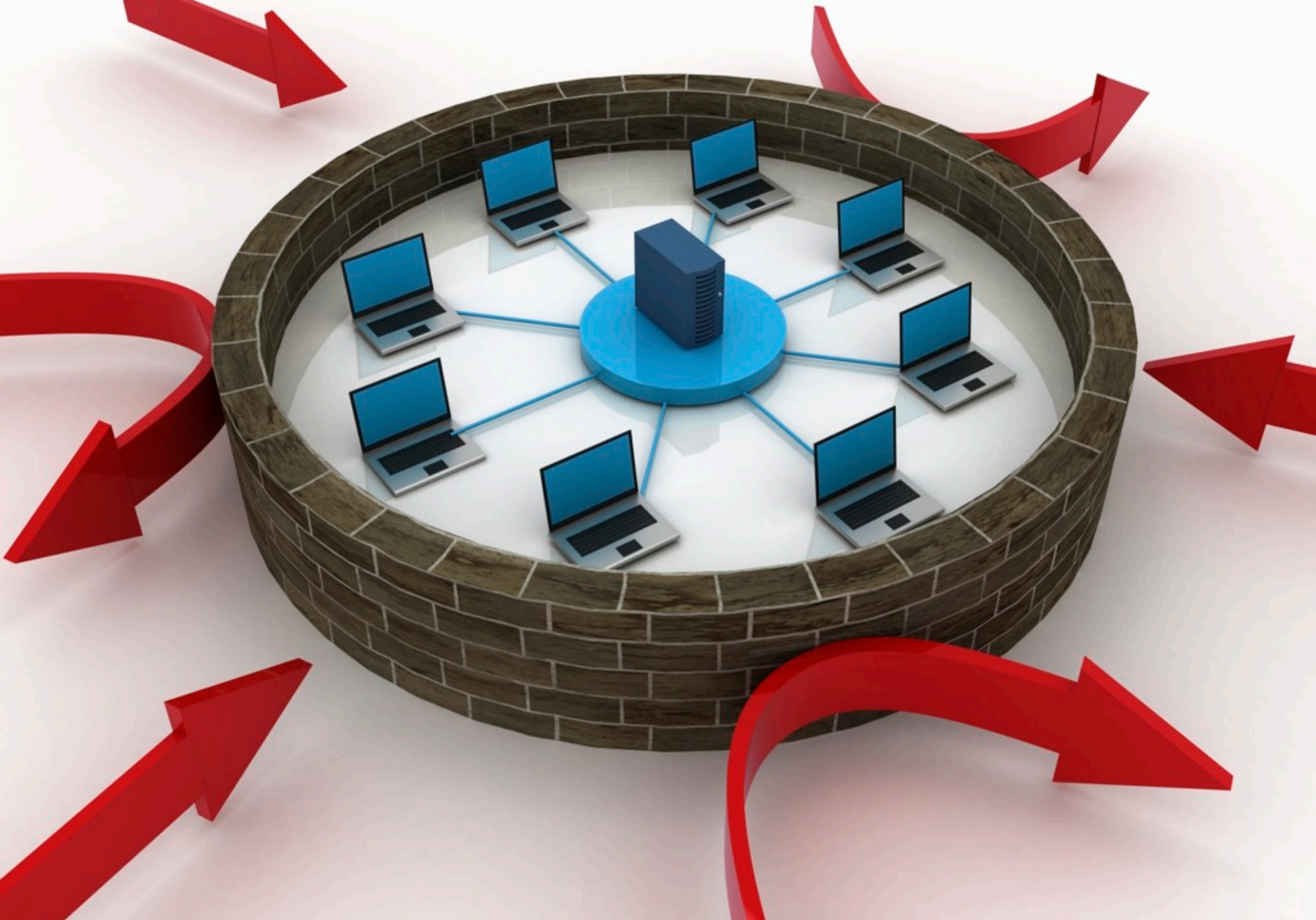

PUBLIC?
PRIVATE?
IAAS?
PAAS?
SAAS?

Mobility

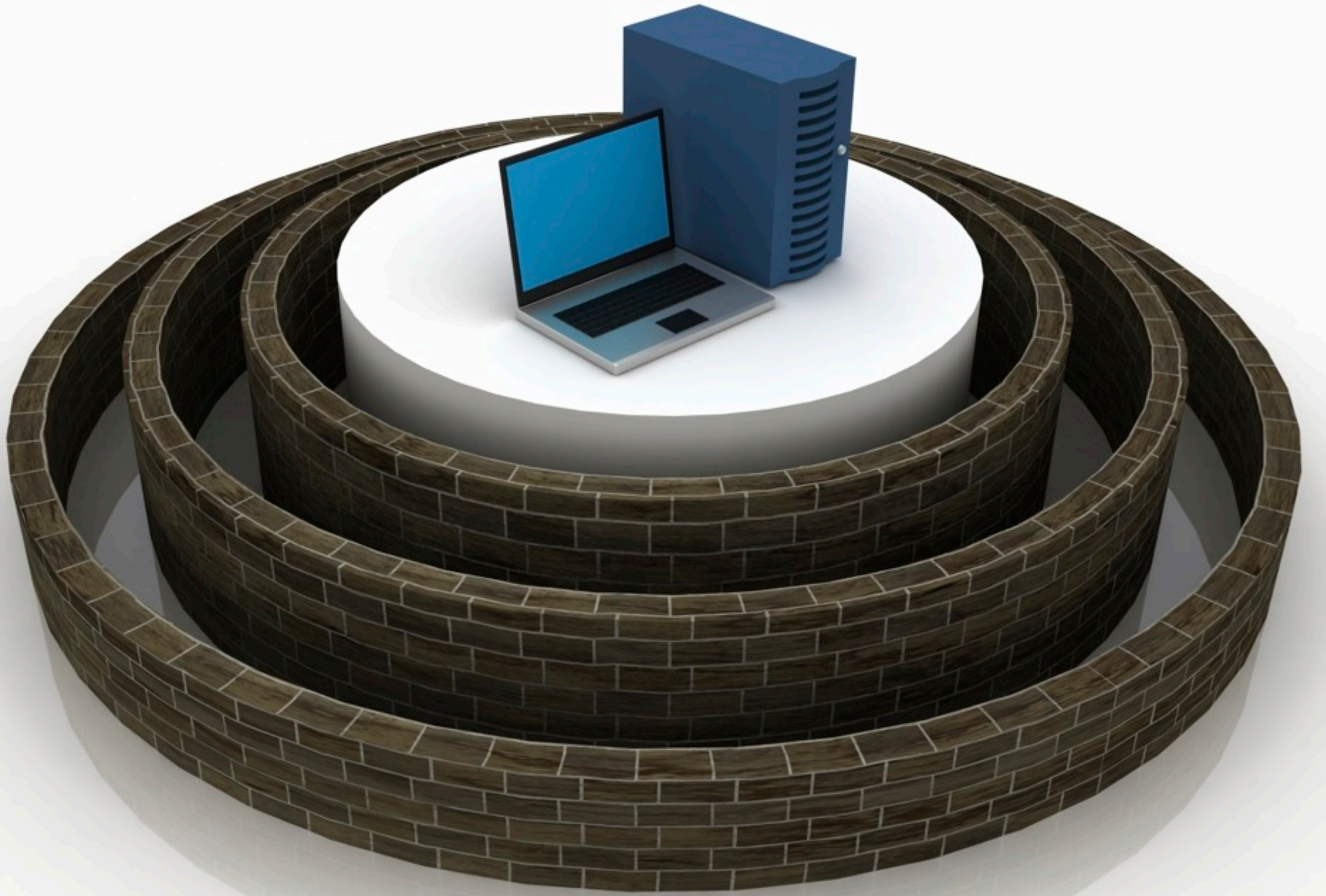


Packaging Problems

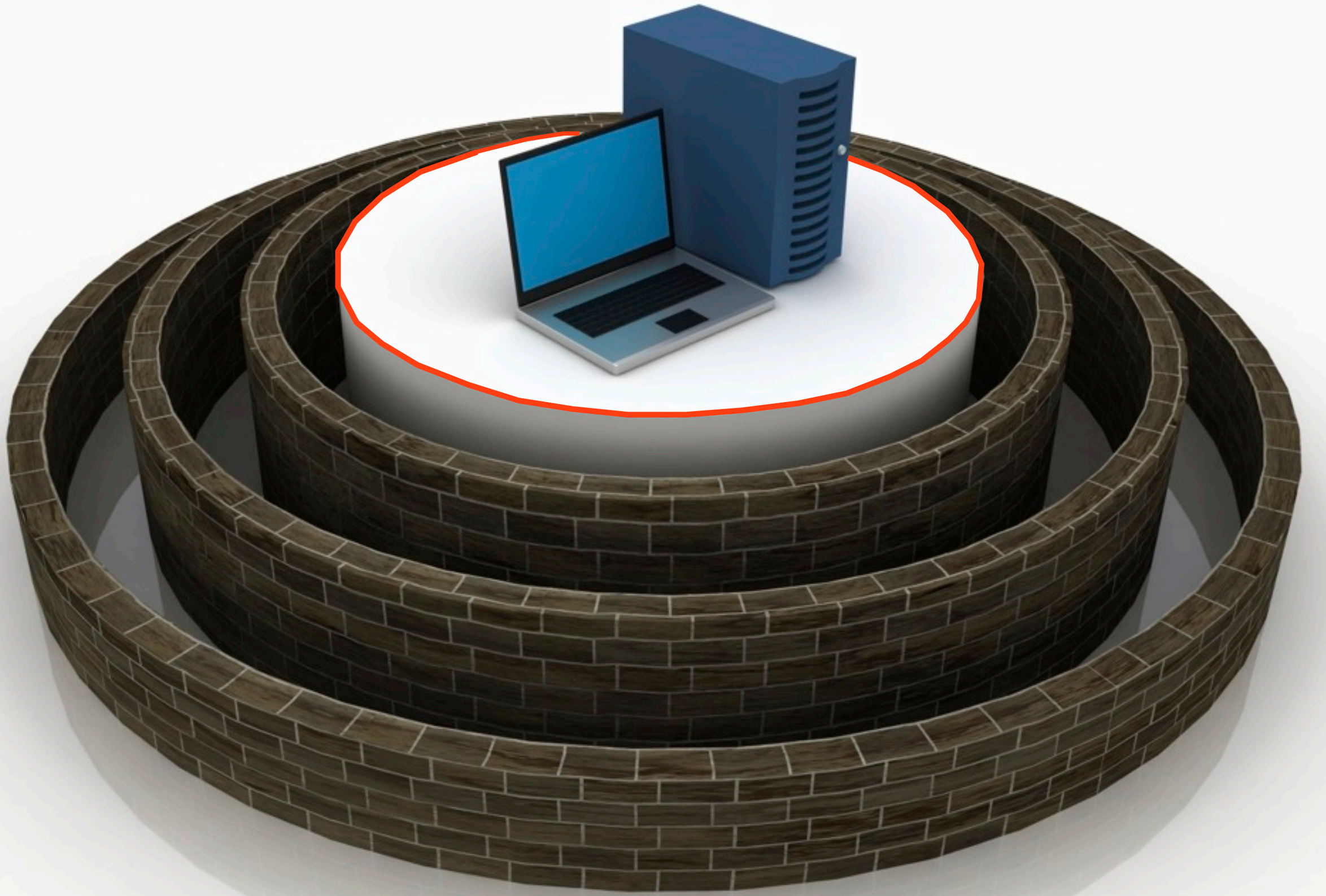
The Perimeter Is Disappearing...



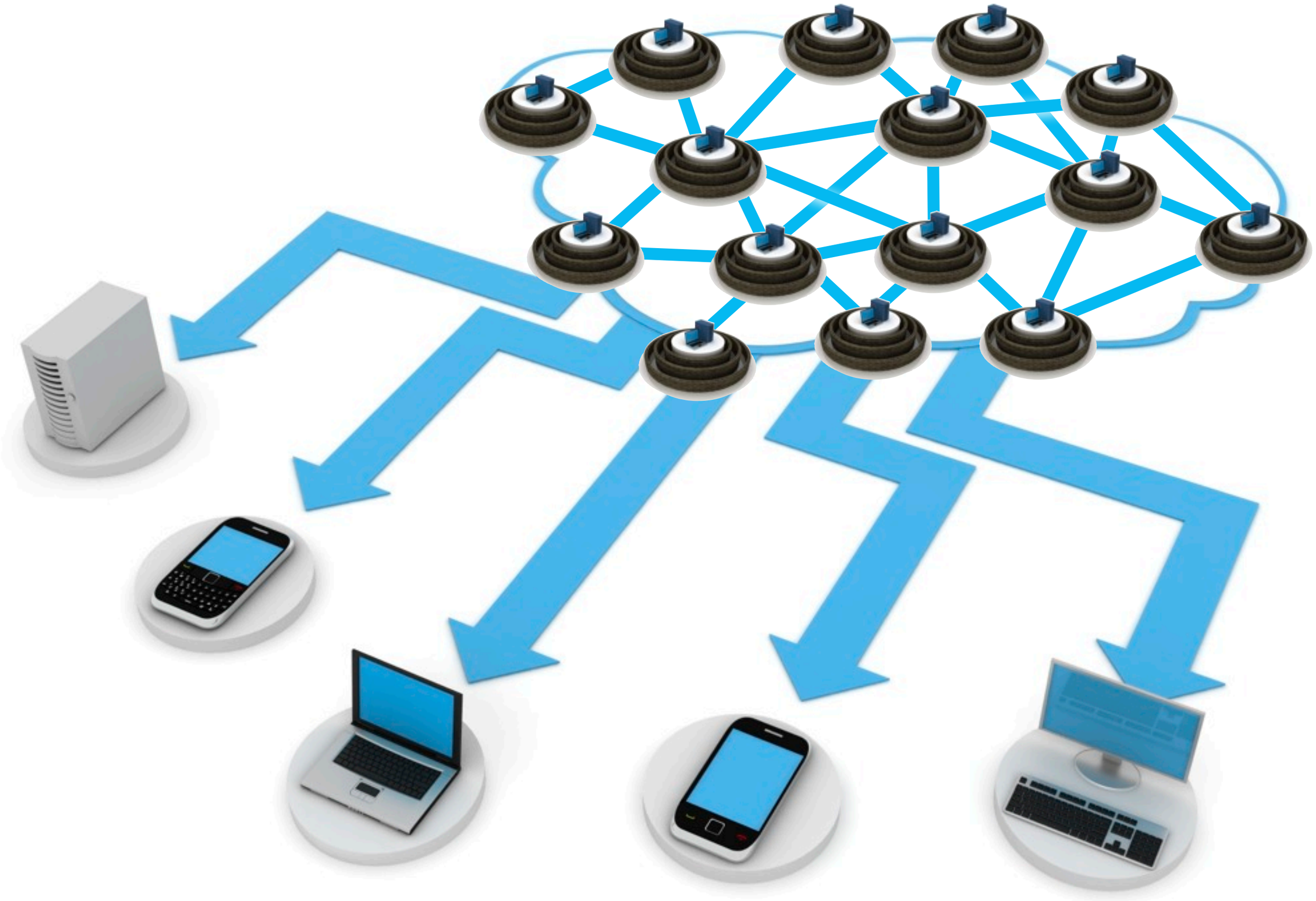
I Disagree...the Perimeter Is multiplying



But The Diameter Is Decreasing...



With Cloud We Have 1000's Of Micro-Perimeters



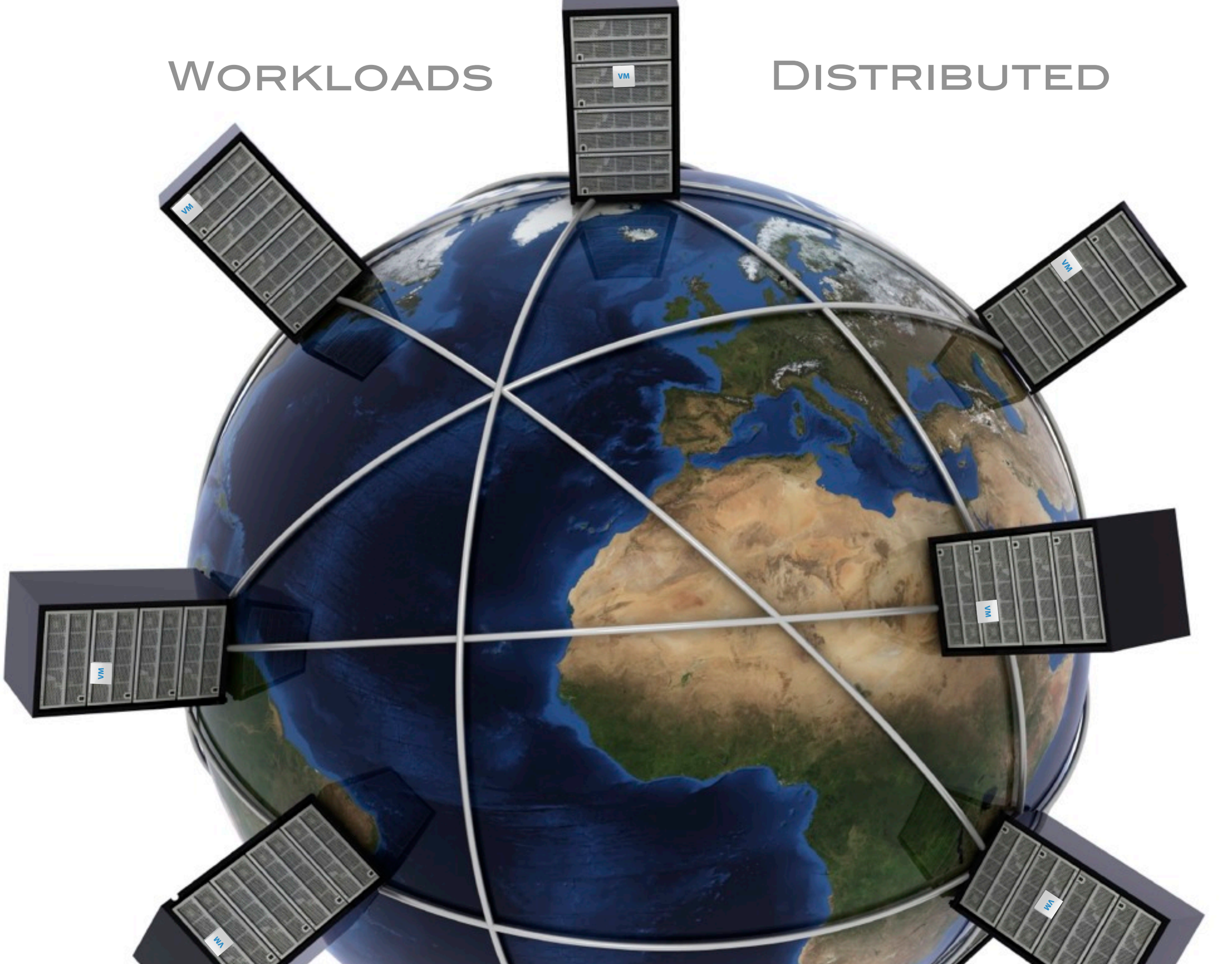

INDIVIDUAL SERVERS

HEAVILY VIRTUALIZED FABRICS...

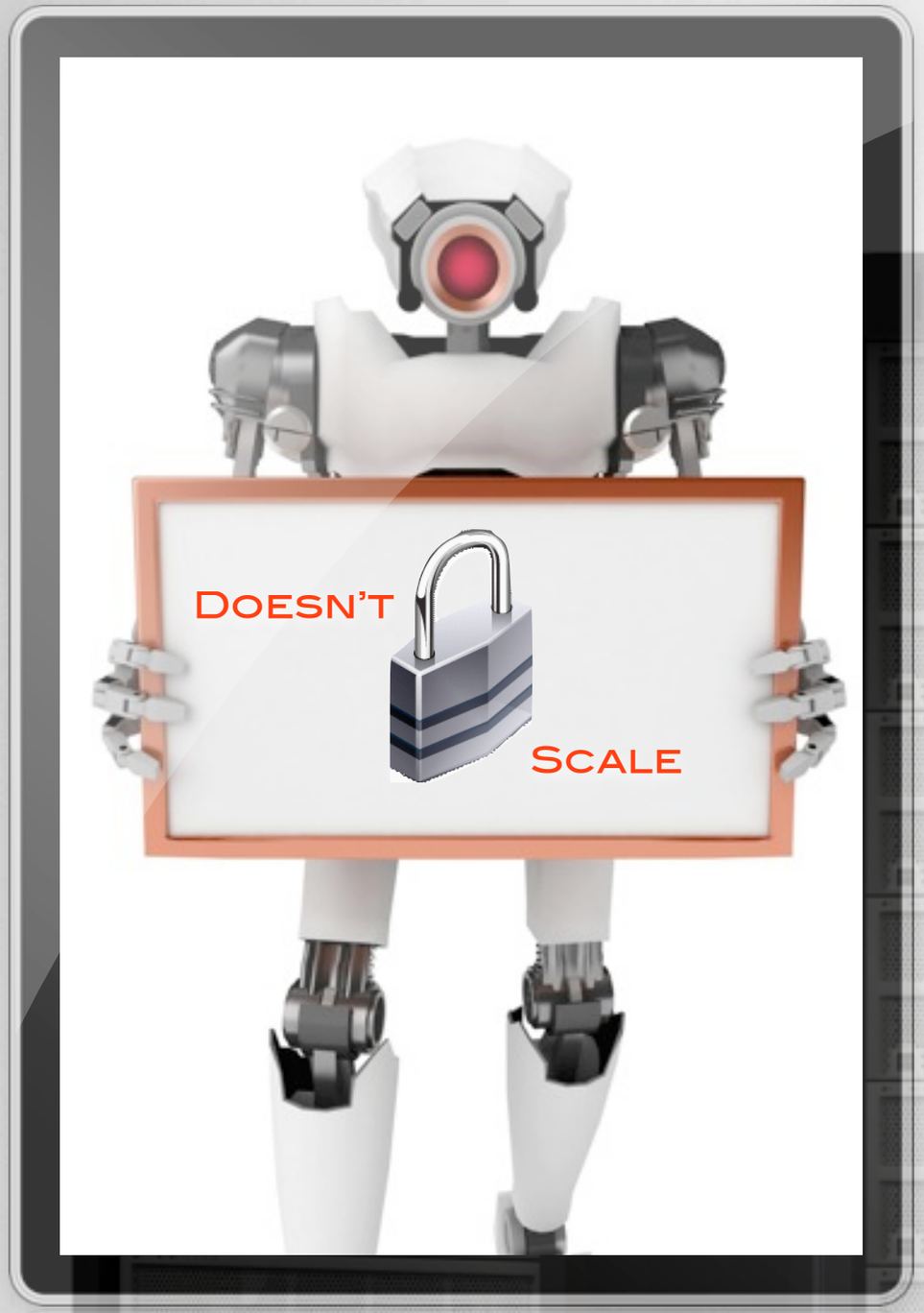
...That Take Advantage Of Scale-Out...

The VM IS The De Facto Perimeter

Workloads Distributed



Heavily Automated



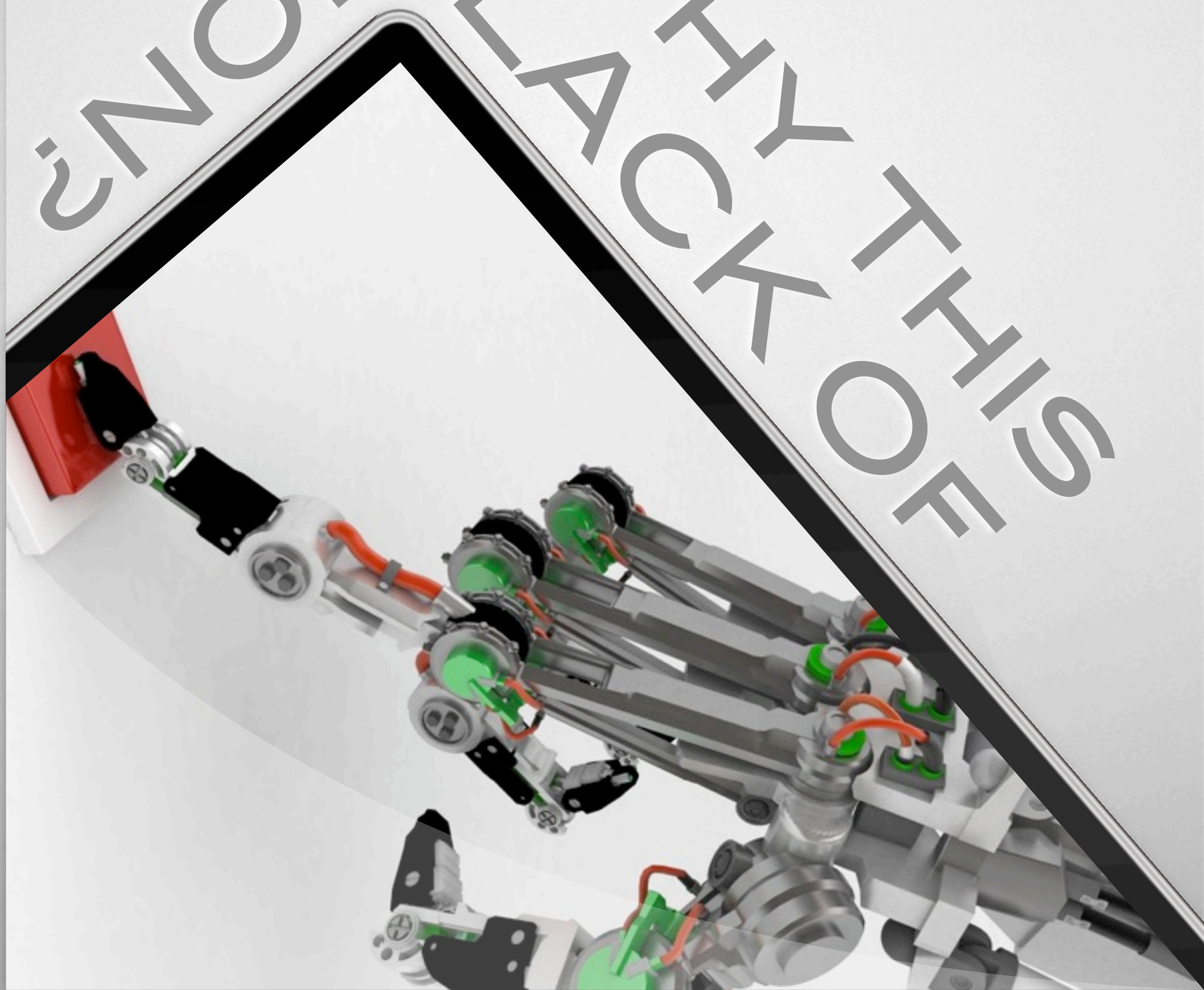
Except For Security

What's Holding Security Back?

AUTOMATION

WHY THIS LACK OF

AUTOMATION?



WE'RE WITNESS TO
AUTOMATED OFFENSE,
BUT NOT DEFENSE...

The Stack

Infostructure

Applistructure

Metastructure

Infrastructure

- Content & Context - Data & Information
- Apps & Widgets - Applications & Services
- Glue & Guts - IPAM, IAM, BGP, DNS, SSL, PKI
- Sprockets & Moving Parts - Compute, Network, Storage

There's No Discipline...

Infostructure

Applistructure

Metastructure

Infrastructure

→ Information Security

→ Application Security

→ Network Security
Host-based Security
Storage Security

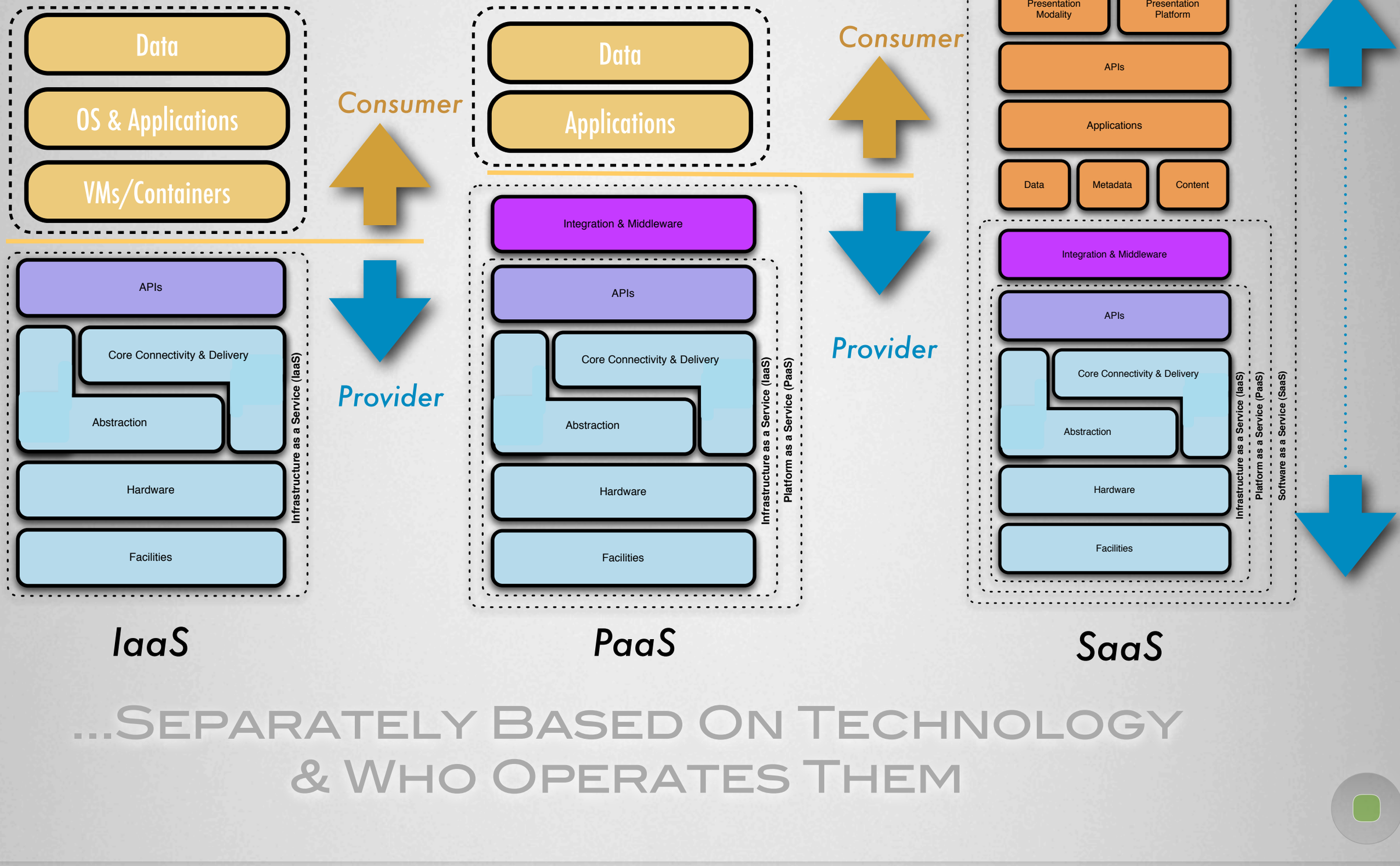
...In Our Discipline

How We Think About Security:

Network, Host & Storage Security

Application Security

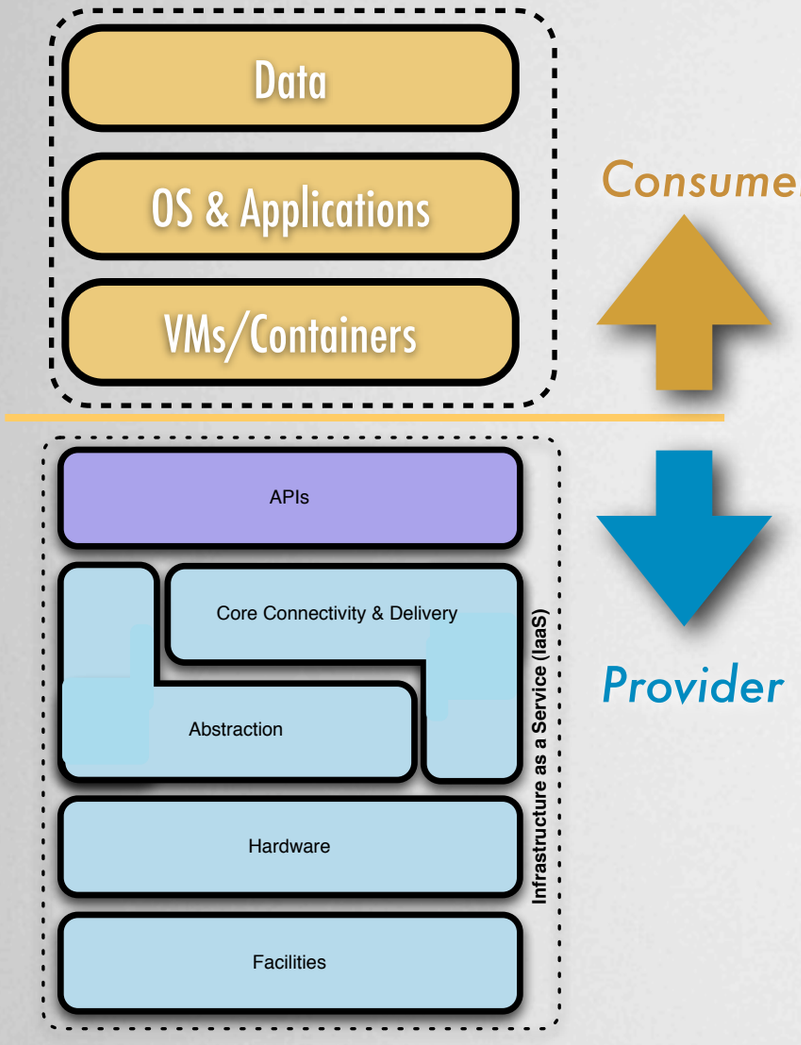
Information Security



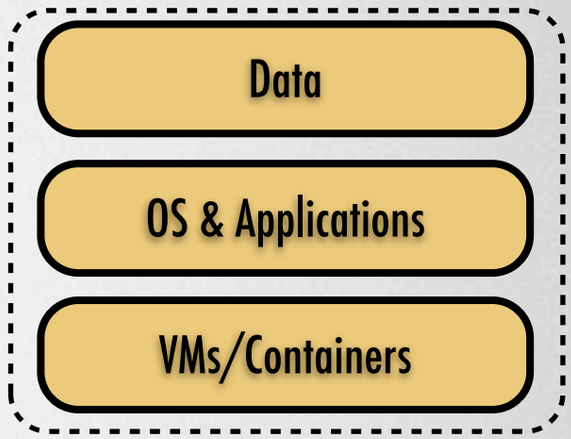
IaaS *PaaS* *SaaS*

...Separately Based On Technology & Who Operates Them

How We Ought To Think About "Security"



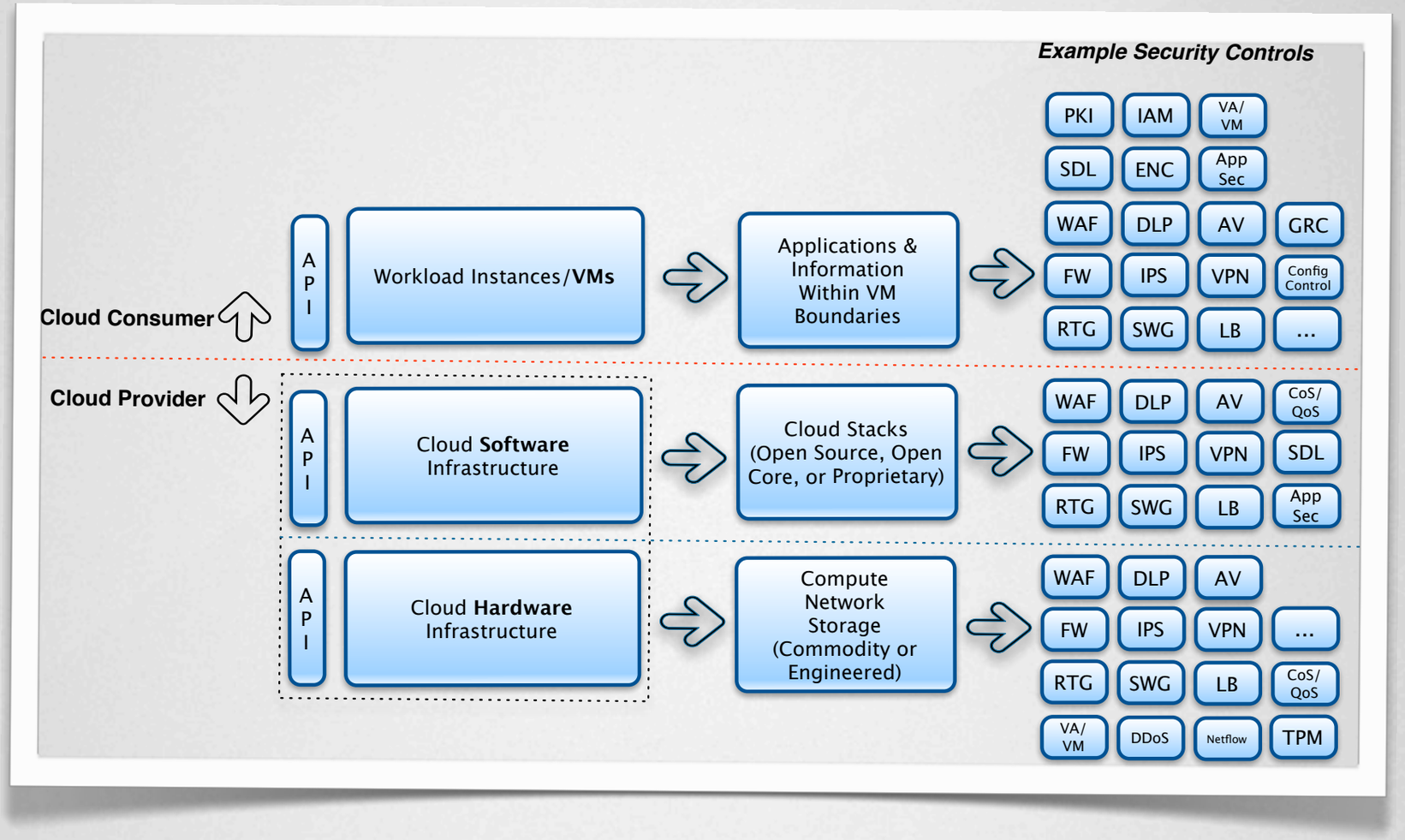
Not Much You Can Do Below the Line...



The Focus Is Here:

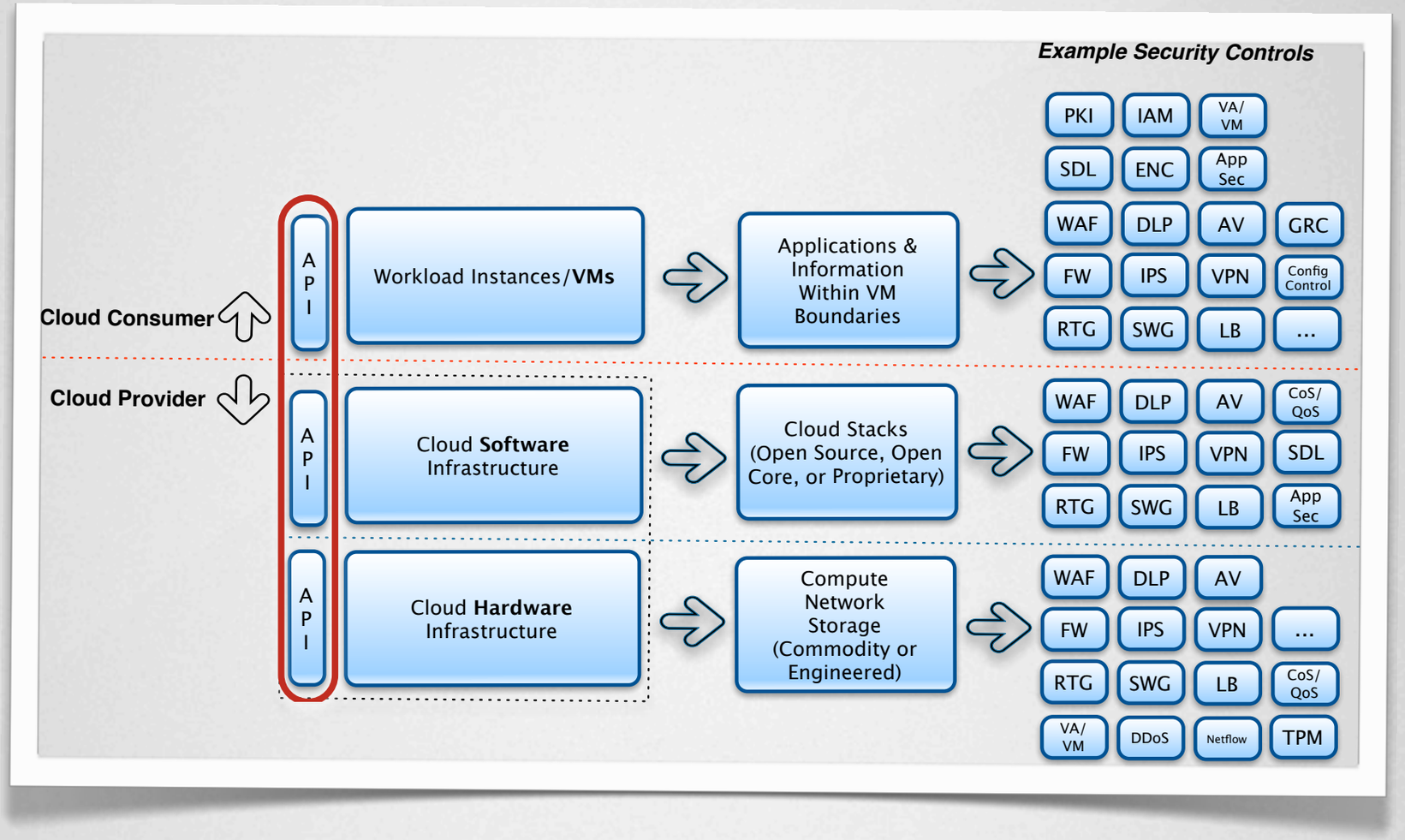
- Building Survivable Systems
- Building Secure Apps
- Securing Data

What We Have...



...Too Much Security

What We Need...



P.O.S.

Programatically Orchestrated Security

How To Get Kick-*aaS Automated Security

1. Design for Scale & Re-define Deployment scenarios
2. Traffic steering/ Service insertion/ context - Physical and Virtual
3. Standardize On Common Telemetry & Consistent Policy Across Platforms
4. More intelligence shared between infra-/ Applistructure
5. Leverage guest-based footprint (IaaS)
6. Leverage Hypervisor, platform & software APIs

How Do We Get There?

Step One

Don't Just Sit There...

It's Not Going To Automate Itself

STEP ONE

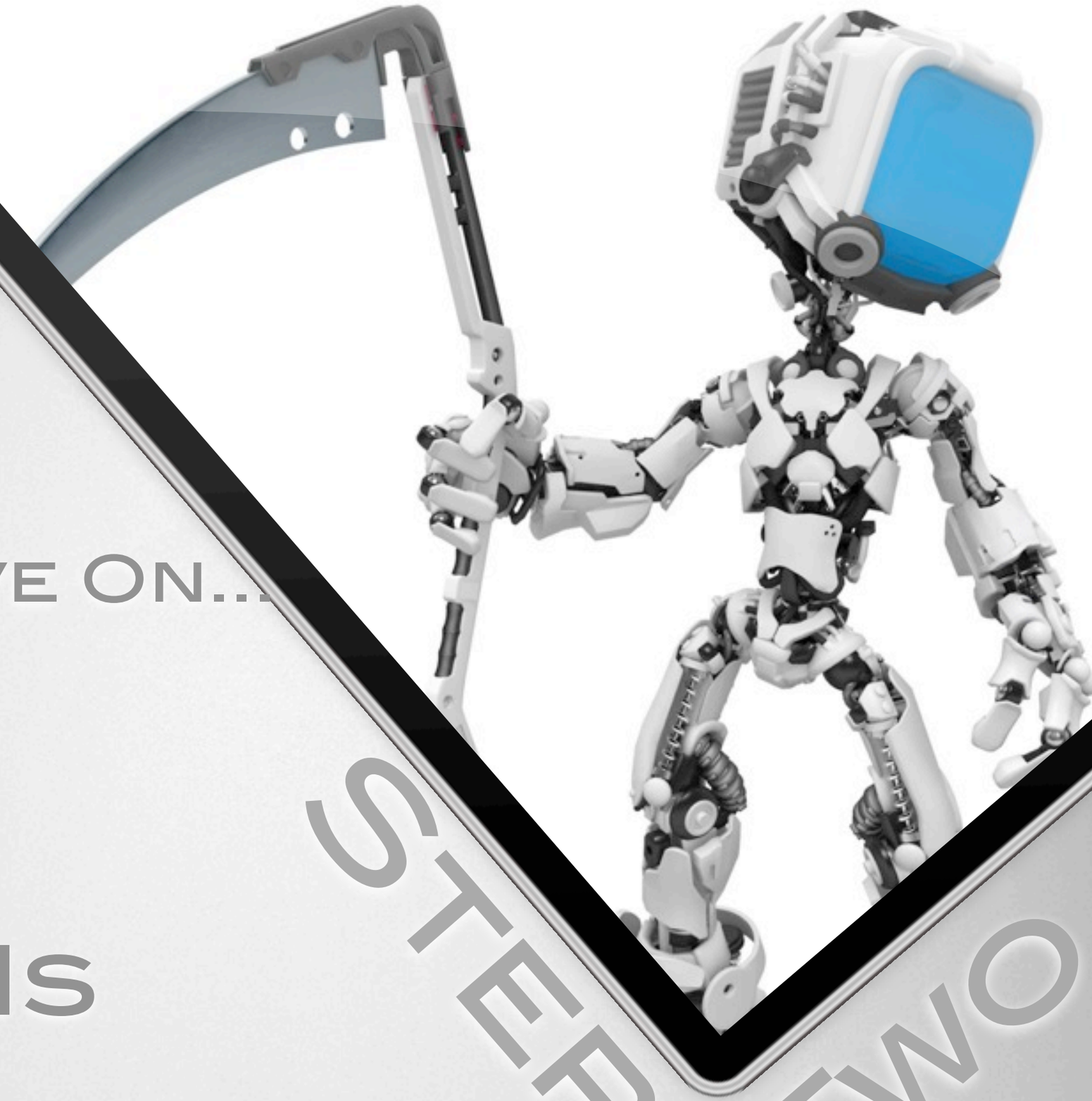
You Still Have To Manage The Basics:

- Building Survivable Systems
- Building Secure Apps
- Securing Data

You Also can't Expect the Cloud/Virt Platform Providers to Give you All you need

Recognize, Accept & Move On...

The DMZ Design Pattern Is Dead



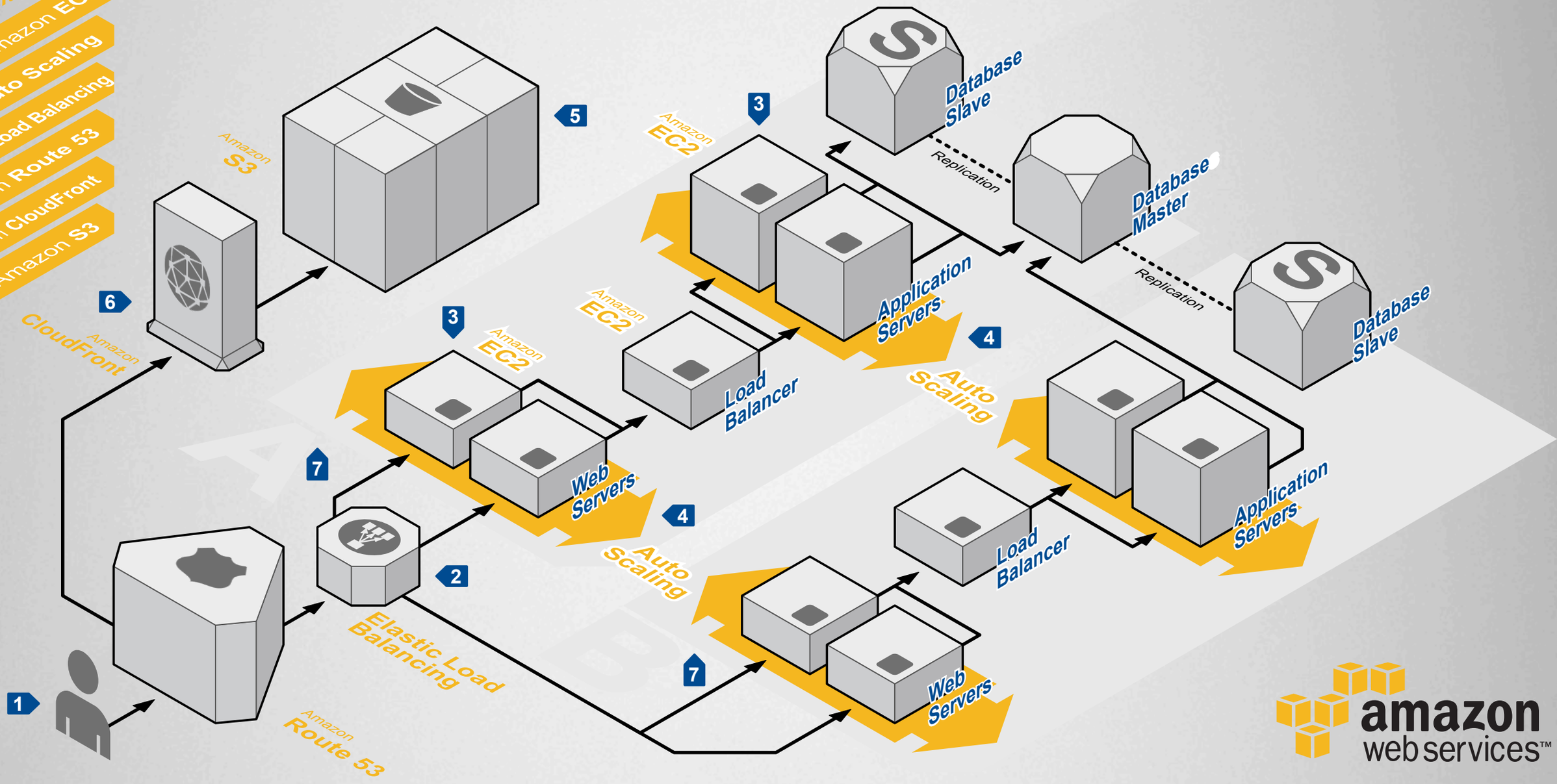
STEP TWO

WEB APPLICATION HOSTING

Highly available and scalable web hosting can be complex and expensive. Dense peak periods and wild swings in traffic patterns result in low utilization rates of expensive hardware. Amazon Web Services provides the reliable, scalable, secure, and high-performance infrastructure required for web applications while enabling an elastic, scale out and scale down infrastructure to match IT costs in real time as customer traffic fluctuates.

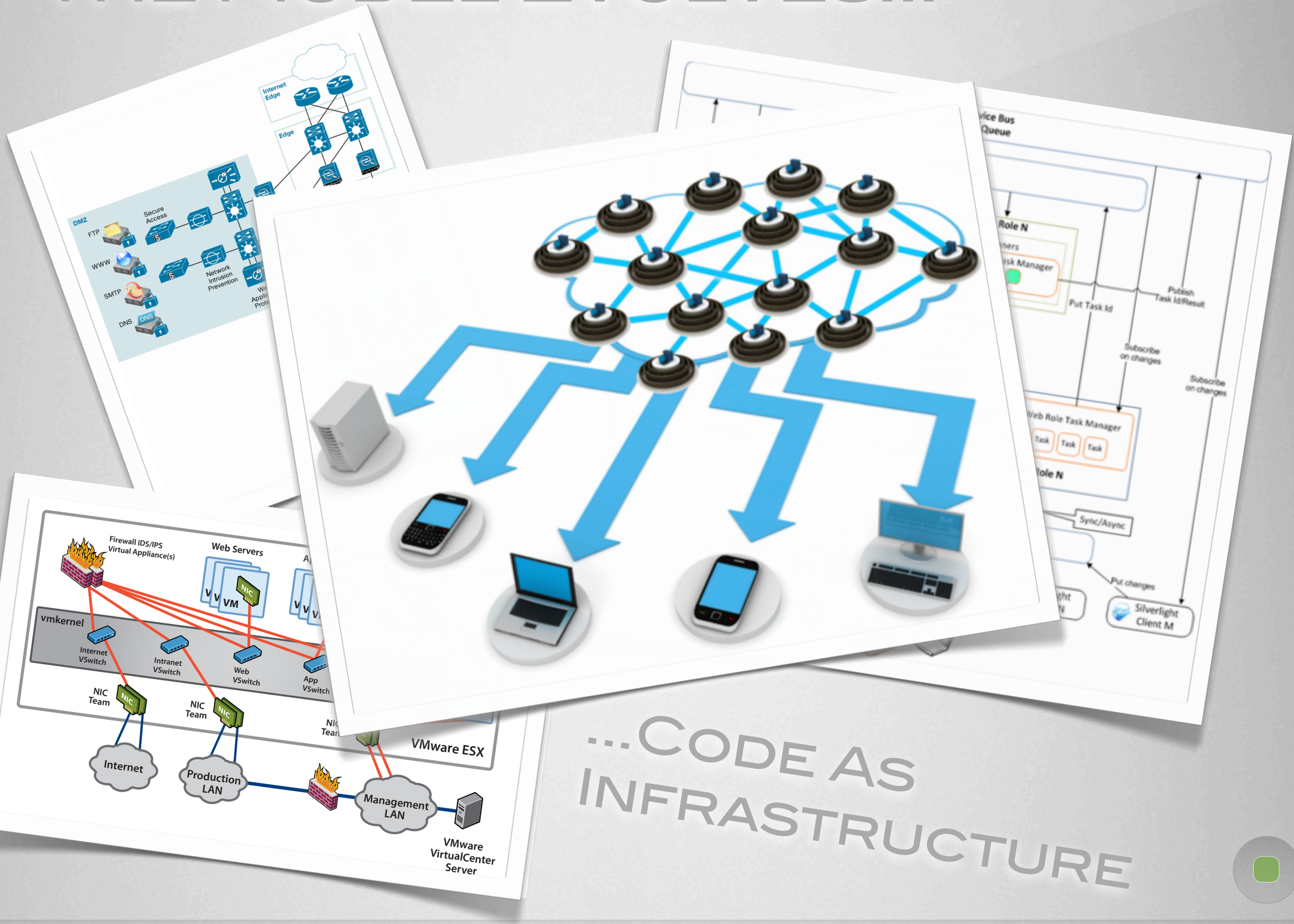
AWS Reference Architectures

- Amazon EC2
- Auto Scaling
- Elastic Load Balancing
- Amazon Route 53
- Amazon CloudFront
- Amazon S3



LOOKS FAMILIAR, BUT...

The Model Evolves...



...Code as Infrastructure

http://www.muranosoft.com/Outsourcingblog/content/binary/WindowsLiveWriter/MicrosoftsWindowsAzureCloudComputinginAc_18D4/

Step Three

Make Use Of Existing/New Services...

...But Don't Re-Invent The Wheel, Either...

You don't have to do it all yourself:

enStratus

RightScale

CloudPassage

Dome9

Qualys

CloudFlare

Nexpose

THREE

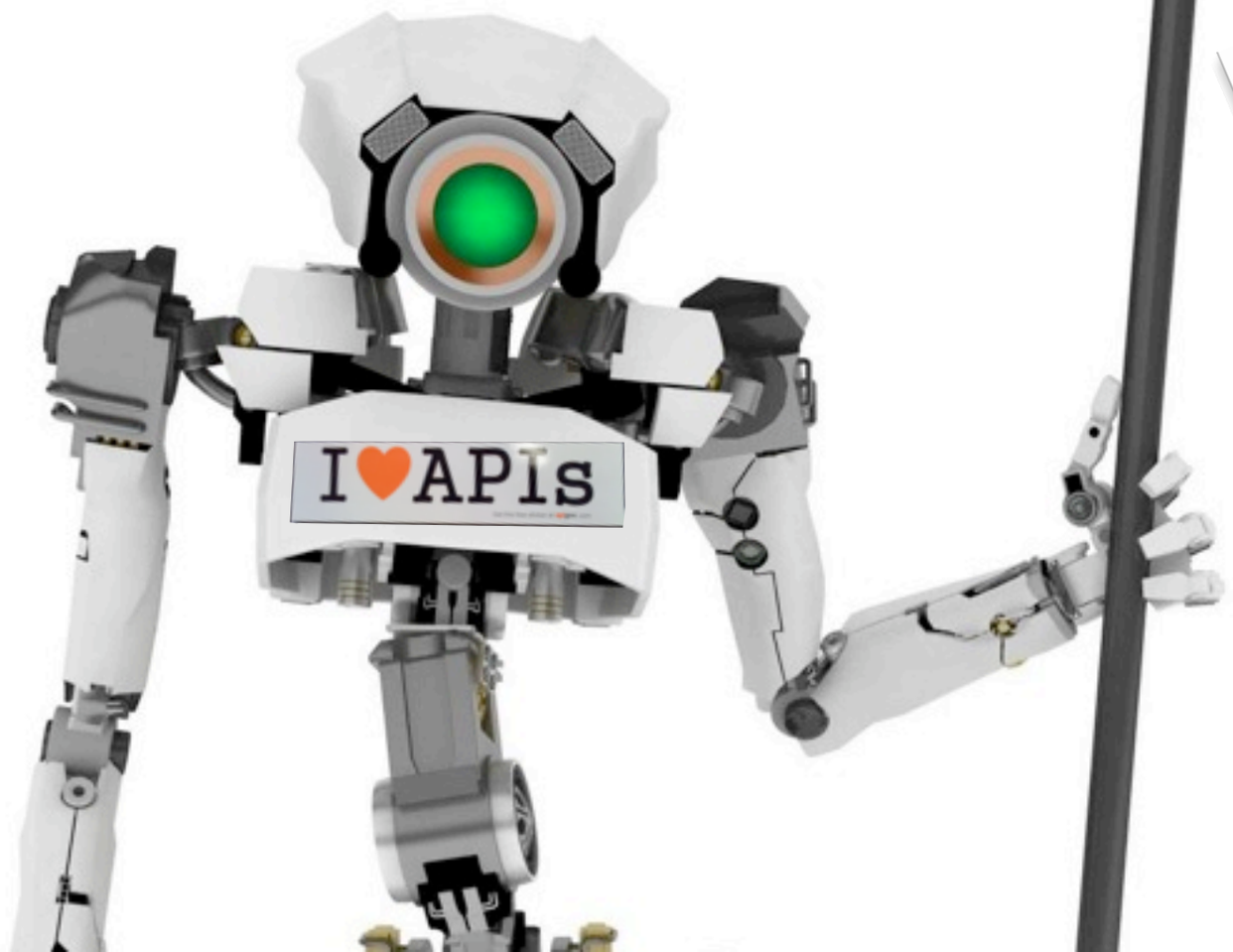
FIVE

Where Should Security Be Delivered? Hardware, Virtualization/Cloud Platform Or Ecosystem?

STEP

FOUR

Demand & Use Programmatic Interfaces (P.O.S.) from Security Solutions

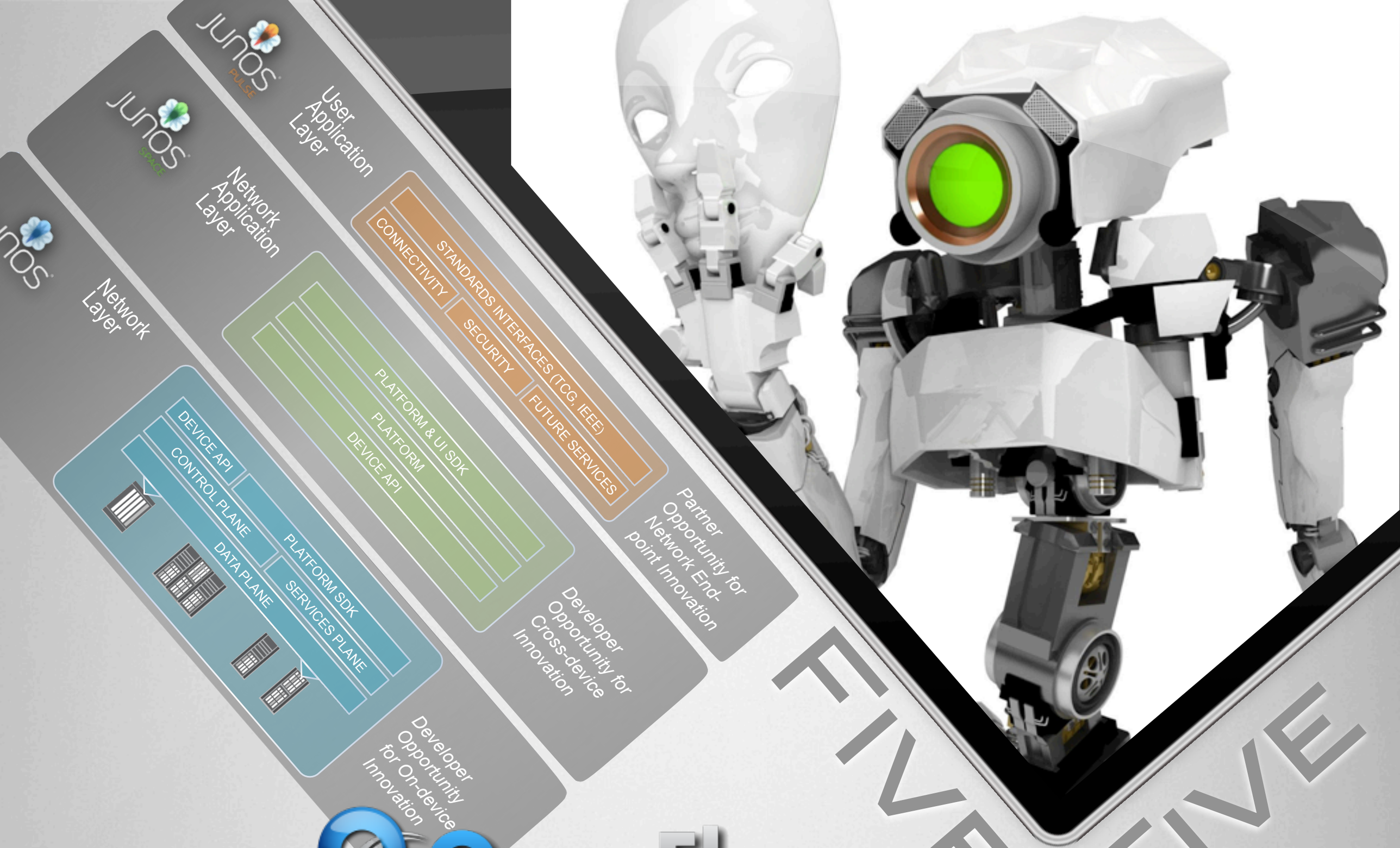


Step Five

Encourage Network & Security Wonks To Become Nimble, Agile & Flexible With Tools/ languages Like Chef, Puppet, & Cfengine, Python, Powershell

FIVE. FIVE

The network Is Evolving



PROGRAMMABILITY...

STEP SIX

Squash Inefficiency & Maximize Efficacy:

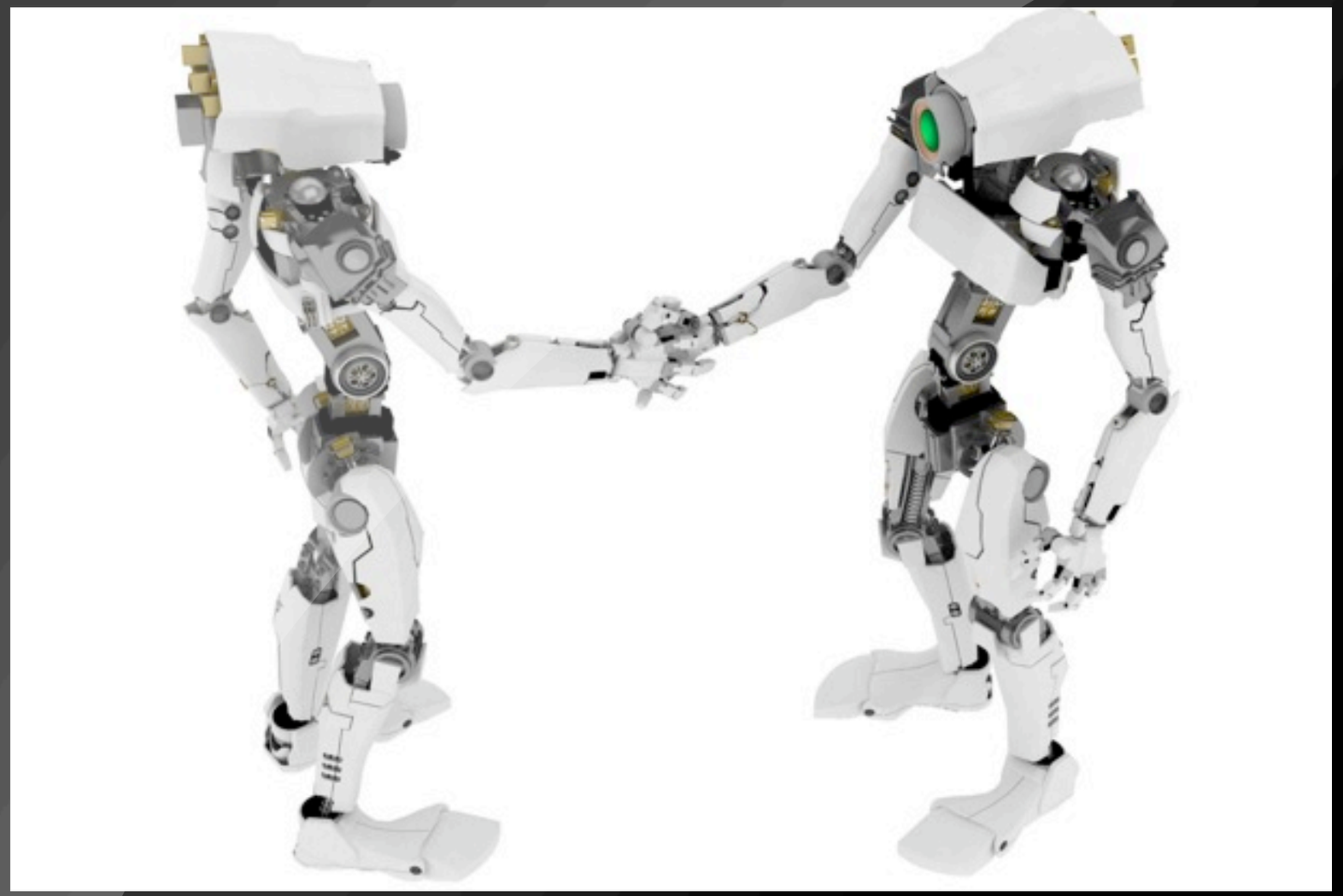
Automate Audit & Compliance Data Collection

www.CloudAudit.org

DOESN'T

SCALE

Fork You & The Process You Rode In On



Dev + Ops + Security Need To Make Nice

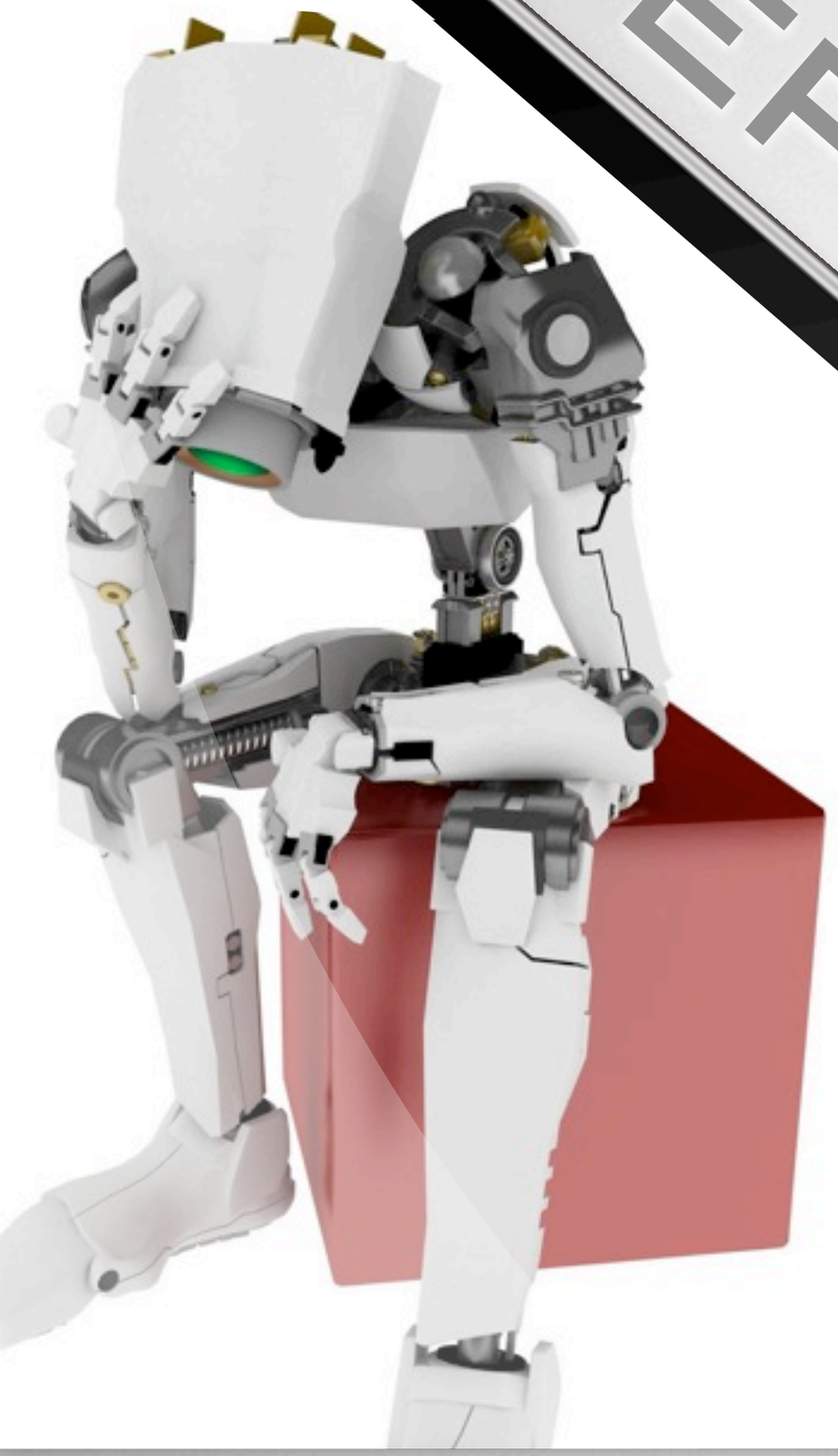
STEP

SEVEN

AppSec/ SDLC Is Huge

Devs Don't Necessarily make good security and vice versa

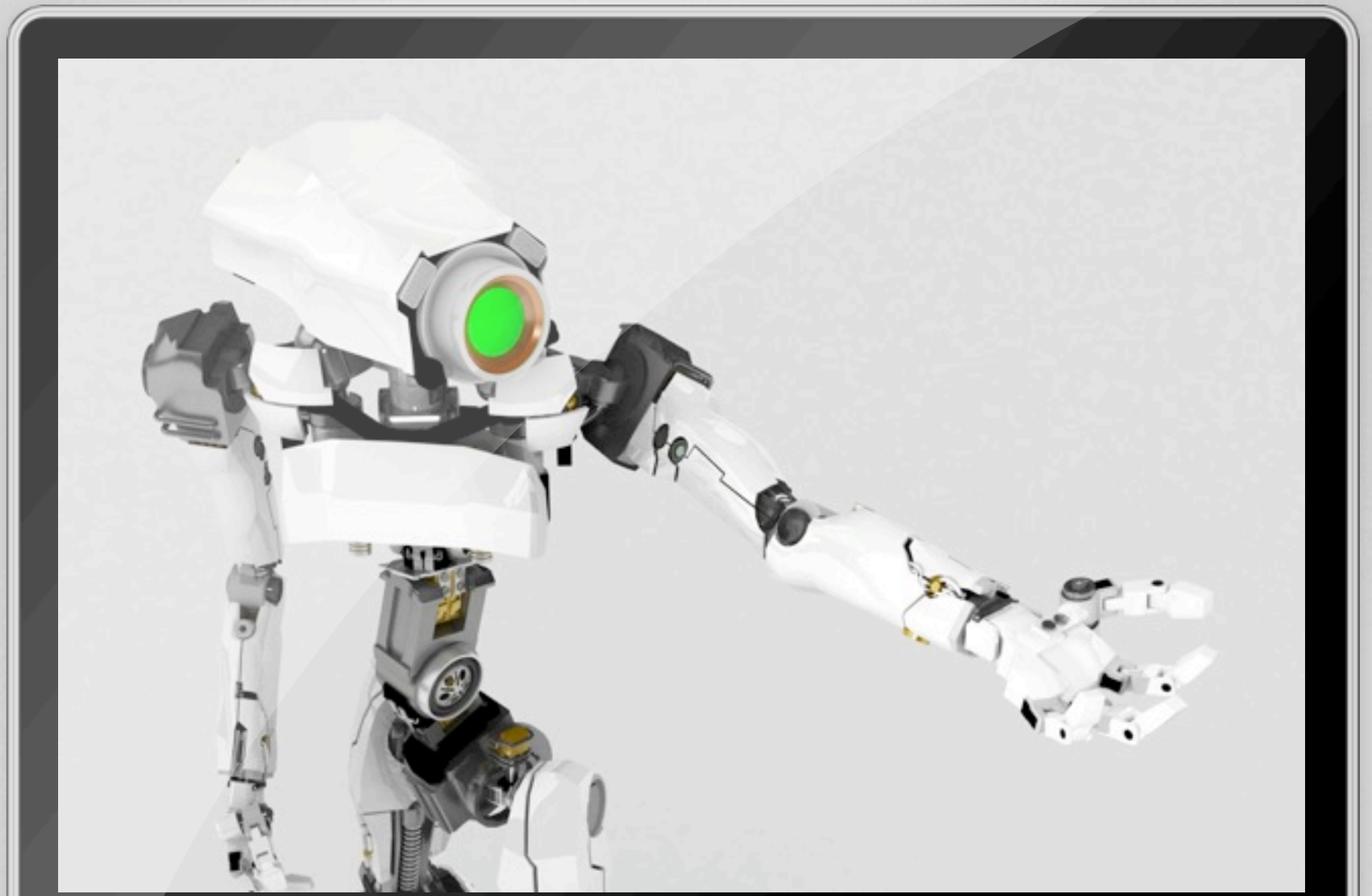
STEP NINJA



Automating Data Protection:

The Final Frontier...

Cloud: The Revenge of VPN and PKI



Today's Virt/Cloud Security: Highly scaleable, cheap or more bundled security.

Pick 2 (?)

To Truly Leverage Cloud Computing, Security Must Scale At The Same Pace As The Workloads It Is Supposed To Protect.

It's Never Too Late To Automate

Don't Settle For The Same Old Crap(per)...

Just Say No To Commode Computing

cloud security alliance

CSA

RESEARCH INITIATIVES ↘

CCM

Cloud Controls Matrix
Security controls framework for cloud provider and cloud consumers

CAI

Consensus Assesments Initiative
Research tools and processes to perform consistent measurements of cloud providers

Cloud Audit

Cloud Audit
Forum in which providers can automate the Audit, Assertion, Assessment, and Assurance (A6) of IaaS, PaaS, and SaaS environments.

CTP

Cloud Trust Protocol
The mechanism by which cloud service consumers ask for and receive information about the elements of transparency as applied to cloud service providers.

Cloud SIRT

CloudSIRT
Enhance the capability of the cloud community to prepare for and respond to vulnerabilities, threats, and incidents in order to preserve trust in cloud computing.

Security Guidance for Critical Areas of Focus in Cloud Computing
Foundational best practices for securing cloud computing

Cloud Metrics
Metrics designed for Cloud Controls Matrix and CSA Guidance

Trusted Cloud Initiative
Secure, interoperable identity in the cloud

Common Assurance Maturity Model
Benchmarks capabilities to deliver information assurance maturity of specific solutions.

Top Threats to Cloud Computing
Threat research updated twice yearly

CSA GRC Stack
integrated suite of 3 CSA initiatives: CloudAudit, Cloud Controls Matrix, CAI Questionnaire

Please Contribute

http://www.cloudsecurityalliance.org

End Of Part 1