AppSec is Eating Security

PRESENTED BY **Alex Stamos** | AppSec Cali | January 27, 2015

Why Software Is Eating The World

By MARC ANDREESSEN
August 20, 2011

This week, Hewlett-Packard (where I am on the board) announced that it is exploring jettisoning its struggling PC business in favor of investing more heavily in software, where it sees better potential for growth. Meanwhile, Google plans to buy up the cellphone handset maker Motorola Mobility. Both moves surprised the tech world. But both moves are also in line with a trend I've observed, one that makes me optimistic about the future growth of the American and world economies, despite the recent turmoil in the stock market.

In short, software is eating the world.

More than 10 years after the peak of the 1990s dot-com bubble, a dozen or so new Internet companies like Facebook and Twitter are sparking controversy in Silicon Valley, due to their rapidly growing private market

Most enterprises are not safe

YAHOO!

Most enterprises are not safe

"SECURE 100"

- Big Banks + other FIs
- Defense Industrial Base
- Oil and Gas
- Critical Infrastructure
- Big Tech
- Some Retail

YAHOO!

Most enterprises are not safe

"SECURE 100"

- Big Banks + other FIs
- Defense Industrial Base
- Oil and Gas
- Critical Infrastructure
- Big Tech
- Some Retail

FORTUNE 500

"TOASTED 400"

Everybody Else

YAHOO!

Most enterprises are not safe

"SECURE 100"

- Big Banks + other FIs
- Defense Industrial Base
- Oil and Gas
- Critical Infrastructure
- Big Tech
- Some Retail

FORTUNE 500

"TOASTED 400"

Everybody Else

What are they missing?

- Secure software engineering
- Engineering focused IR
- Ability to create, not buy, solutions

YAHOO!

Almost no users are safe

How My Mom Got Hacked

By ALINA SIMONE JAN. 2, 2015

Email

Share

Tweet

Save

More

MY mother received the ransomnote on the Tuesday before Thanksgiving. It popped up on her computer screen soon after she'd discovered that all of her files had been locked. "Your files are encrypted," it announced. "To get the key to decrypt files you have to pay 500 USD." If my mother failed to pay within a week, the price would go up to $1,000. After that, her decryption key would be destroyed and any chance of accessing the 5,726 files on her PC — all of her data — would be lost forever.

Sincerely, CryptoWall.

CryptoWall 2.0 is the latest immunoresistant strain of a larger body of viruses known as ransomware. The virus is thought to infiltrate your computer

Javier Jaén

YAHOO!

Security hardware is becoming un-buyable

Arista 7508E
1152 x 10GbE
30Tbps backplane
5kW

YAHOO!

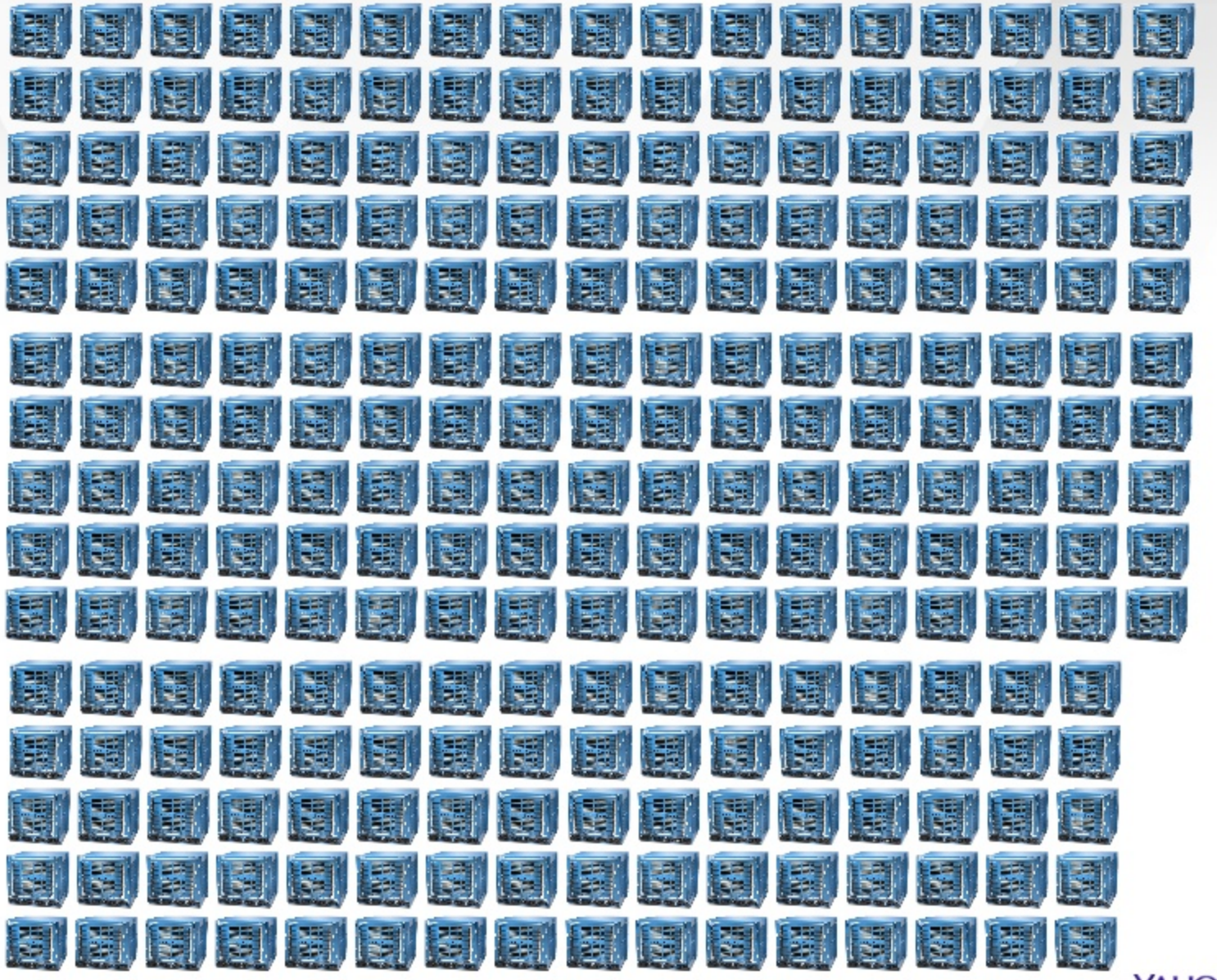
Security hardware is becoming un-buyable

Arista 7508E
1152 x 10GbE
30Tbps backplane
5kW

Palo Alto 7050
120Gbps throughput
2.4kW

YAHOO!

YAHOO!



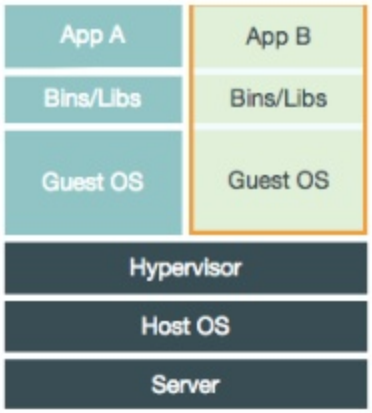
YAHOO!

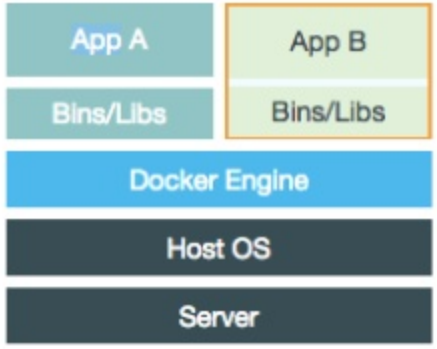
5kW

600kW

YAHOO!

Containerization collapses the security perimeter

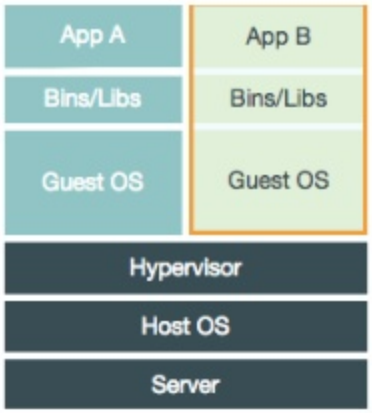


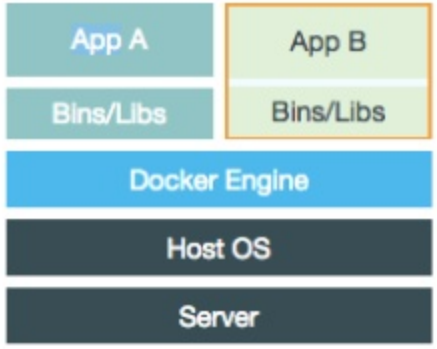


Diagrams from docker.com

YAHOO!

Containerization collapses the security perimeter





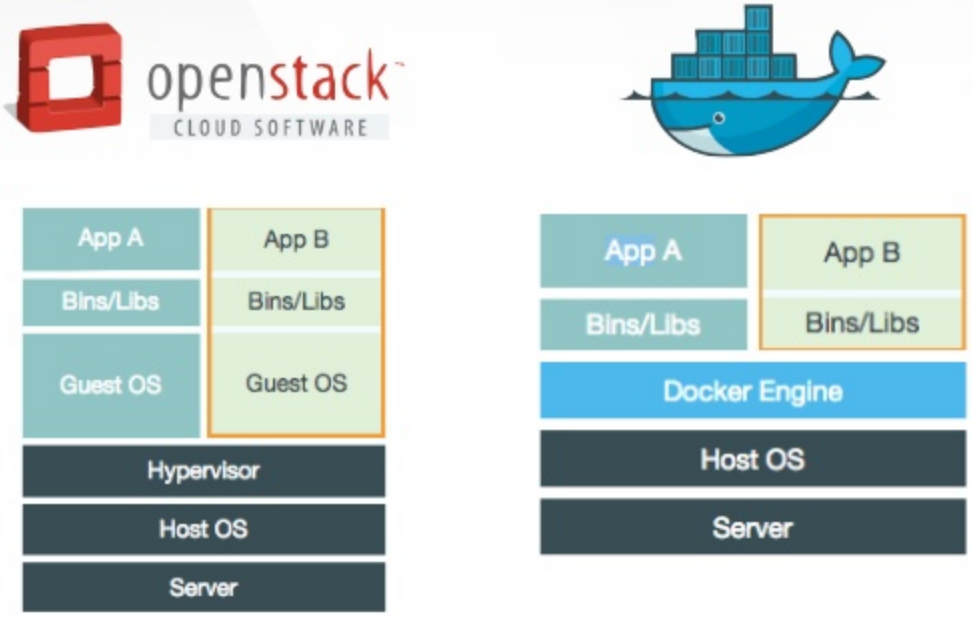
Diagrams from docker.com

No:

- Virtual soundcard
- Guest OS patching
- VT-x enforcement
- Network controls
- Stable naming
- 1:1 service relationships

YAHOO!

Containerization collapses the security perimeter



Diagrams from docker.com

No:

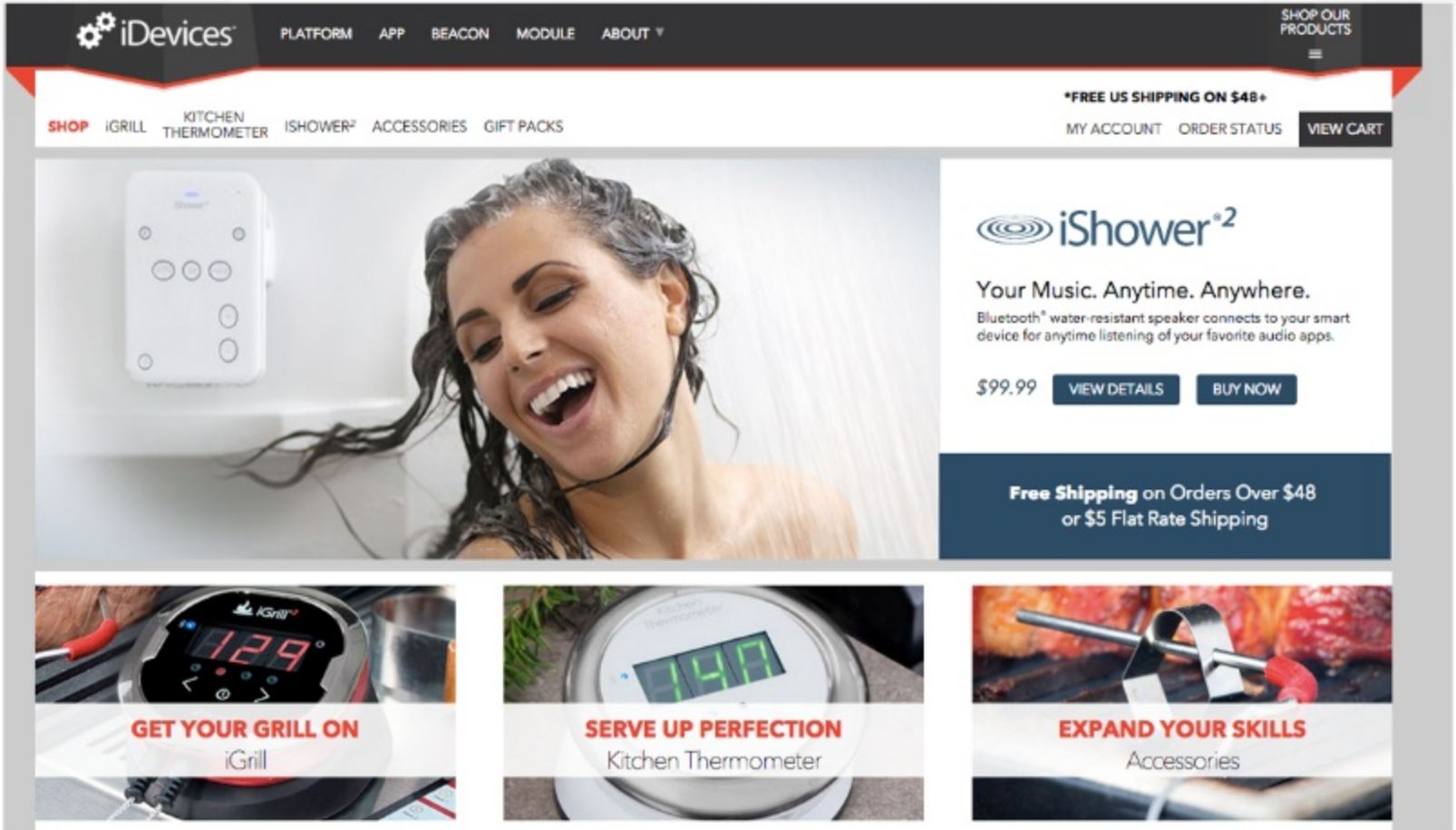
- Virtual soundcard
- Guest OS patching
- VT-x enforcement
- Network controls
- Stable naming
- 1:1 service relationships

In the long run, this is a good thing!

In the short term, it's a mess to deal with!

YAHOO!

The Internet of ~~Unpatchable Crap~~ Things



store.idevices.com

YAHOO!

What AppSec Needs to Accomplish

Apps have to be secure by default

Security Matrix

Spot a mistake? Let us know! We go for fail if unclear - rather too harsh than too lax.

https://code.google.com/p/mustache-security/
by cure53.de

Framework	{}SEC-A	{}SEC-B	{}SEC-C	{}SEC-D	{}SEC-E	{}SEC-F
VueJS	Fail	Fail	Fail	Fail	Fail	Fail
AngularJS 1.0.8	Fail	Fail	Fail	Fail	PASS	Fail
AngularJS 1.2.0	Fail	PASS	Fail	Fail	PASS	PASS
CanJS	Fail	Fail	PASS	Fail	Fail	Fail
Underscore.js	Fail	Fail	PASS	Fail	Fail	Fail
KnockoutJS	Fail	Fail	Fail	Fail	Fail	Fail
Ember.js	Fail	PASS	PASS	Fail	PASS	TBD
Polymer	TBD	TBD	TBD	TBD	TBD	TBD
Ractive.js	Fail	Fail	Fail	Fail	Fail	Fail
jQuery	TBD	TBD	TBD	TBD	PASS	TBD
JsRender	Fail	Fail	Fail	Fail	Fail	Fail
Kendo UI	Fail	Fail	Fail	Fail	Fail	Fail

- **{}SEC-A** Are template expressions executed without using `eval` or `Function`? (yes = pass)
- **{}SEC-B** Is the the execution scope well isolated or sand-boxed? (yes = pass)
- **{}SEC-C** Can only script elements serve as template containers? (yes = pass)
- **{}SEC-D** Does the framework allow, encourage or even enforce separation of code and content? (yes = pass)
- **{}SEC-E** Does the framework maintainer have a security response program? (yes = pass)
- **{}SEC-F** Does the Framework allow or encourage safe CSP rules to be used (yes = pass)

YAHOO!

Apps have to be secure by default

Security Matrix

Spot a mistake? Let us know! We go for fail if unclear - rather too harsh than too lax.

https://code.google.com/p/mustache-security/
by cure53.de

Framework	{}SEC-A	{}SEC-B	{}SEC-C	{}SEC-D	{}SEC-E	{}SEC-F
VueJS	Fail	Fail	Fail	Fail	Fail	Fail
AngularJS 1.0.8	Fail	Fail	Fail	Fail	PASS	Fail
AngularJS 1.2.0	Fail	PASS	Fail	Fail	PASS	PASS
CanJS	Fail	Fail	PASS	Fail	Fail	Fail
Underscore.js	Fail	Fail	PASS	Fail	Fail	Fail
KnockoutJS	Fail	Fail	Fail	Fail	Fail	Fail
Ember.js	Fail	PASS	PASS	Fail	PASS	TBD
Polymer	TBD	TBD	TBD	TBD	TBD	TBD
Ractive.js	Fail	Fail	Fail	Fail	Fail	Fail
jQuery	TBD	TBD	TBD	TBD	PASS	TBD
JsRender	Fail	Fail	Fail	Fail	Fail	Fail
Kendo UI	Fail	Fail	Fail	Fail	Fail	Fail

How many developers understand the security risk they imported?

- **{}SEC-A** Are template expressions executed without using `eval` or `Function`? (yes = pass)
- **{}SEC-B** Is the the execution scope well isolated or sand-boxed? (yes = pass)
- **{}SEC-C** Can only script elements serve as template containers? (yes = pass)
- **{}SEC-D** Does the framework allow, encourage or even enforce separation of code and content? (yes = pass)
- **{}SEC-E** Does the framework maintainer have a security response program? (yes = pass)
- **{}SEC-F** Does the Framework allow or encourage safe CSP rules to be used (yes = pass)

YAHOO!

App Sec doesn't have to be realtime or inline

- 10Gb Ethernet = 67ns between frames

YAHOO!