Mobile Networks
The New Enterprise Network
Dartmouth College July 2012
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Leading The Change
What Happens in an Internet Minute?

- 639,800 GB of global IP data transferred
- 20 new victims of identity theft
- 204 million emails sent
- 47,000 app downloads
- 583,000 in sales
- 20 million photo views
- 3,000 photo uploads
- 61,141 hours of music
- 320+ new Twitter accounts
- 100,000 new tweets
- 135 botnet infections
- 6 new Wikipedia articles published
- 1,300 new mobile users
- 100+ new LinkedIn accounts
- 277,000 logins
- 6 million Facebook views
- 2+ million search queries
- 30 hours of video uploaded
- 1.3 million video views

And Future Growth is Staggering

Today, the number of networked devices = the global population
By 2015, the number of networked devices = 2x the global population
In 2015, it would take you 5 years to view all video crossing IP networks each second

Intel
The Mobile Network
The Mobile Network
User Equipment (UE)
eNodeB
Wireless Access Point
Phone to Tower

RAN
Radio Access Network

GERAN
GSM Edge Radio Access Network

UTRAN
Universal Terrestrial Radio Access Network

UTMS
Universal Mobile Telecommunications System
Authentication

Windows Server Active Directory
The 4G/LTE Mobile Network

Mobility Management Entity
Billing and Storage
The 4G/LTE Mobile Network

Home Subscriber Server
Enterprise Network
The 4G/LTE Mobile Network

Serving Gateway
The 4G/LTE Mobile Network

Packet Data Network Gateway
Policy Control Rules Function
The 4G/LTE Mobile Network

Policy Control Rules Function
THE WHOLE INTERNET
The 4G/LTE Mobile Network

Packet Data Network
GTP
- Tunneling (bearer channels)

Multiple UE
- Context

Reputation Based
- IP Location

Handover
- WiFi, Edge, 3G and 4G

Fragmentation
- Each device may have a different MTU
## Mobile Phone Adoption

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country or region</th>
<th>Number of mobile phones</th>
<th>Population</th>
<th>% of population</th>
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<tbody>
<tr>
<td>World</td>
<td>Over 5.6 billion</td>
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<td>Philippines</td>
<td>86000000</td>
<td>94013200</td>
<td>92</td>
</tr>
</tbody>
</table>
CREATE
Application and Threat Intelligence

Application & Threat Intelligence Service

Exclusive visibility
- Customer relationships
- Reputation monitoring

Threat discovery
- Advanced Persistent Threats
- Stuxnet, DDOS, Malware

Application trends
- Mobile, social, gaming, business
- Voice, video, data

Custom conditions
CONTROL
Simulation and Testing

Simulation & Testing Devices

Patented product line
- Internet-scale simulation
- Real user behavior, live attacks
- Dynamic and customizable scenarios
- Open and extensible platform

Easy-to-use
- Comprehensive automation
- Repeatable test and measurement
- Integrated analysis and reporting
IT Lifecycle Solutions

Battle-test infrastructure
- Next-generation products
- Converged and mobile networks
- Cloud infrastructures

Train cyber warriors
- Comprehensive skills
- Dynamic exercises

Standardize processes
- Optimized systems
- Ongoing resiliency
- Predictive risk mitigation
Control Product Family

**BreakingPoint FireStorm CTM**
40 Gbps of blended application traffic per blade, 120 Gbps per chassis

**BreakingPoint Storm CTM 1GigE**
16 Gbps of blended application traffic per blade, 32 Gbps per chassis

**BreakingPoint Storm CTM 10GigE**
20 Gbps of blended application traffic per blade, 40 Gbps per chassis

**BreakingPoint FireStorm ONE**
40 Gbps of blended application traffic per 1U chassis, includes travel case
Mobility Solutions

- Comprehensive 3G/4G/LTE capabilities
- Mobile data, malware and other attacks
- Unsurpassed scalability
“BreakingPoint is an integral part of Fortinet’s initiatives to advance the capabilities and performance of our next-generation firewalls.”

Ken Xie, Chief Executive Officer
“Our intelligent network technologies give us the capability to analyze traffic flows to detect malicious activities, and in many cases, identify very early indicators of attacks before they have the opportunity to become major events.”

Dr. Edward Amoroso, Chief Security Officer
“Leveraging BreakingPoint, we put our customers’ infrastructures to the ultimate test to predict if a network, application, or data center will be resilient against advanced threats.”

Chris Durbin, Head of Cyber Security
“With BreakingPoint, we’ve implemented rigorous processes for testing and certifying the security of every aspect of our network.”

Director of Network Security
Thanks!
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