A sane approach to virtualization security

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Virtualization and its promise

- **Virtualization**
  - Devices, networks, applications are being virtualized
  - Huge benefits in flexibility, cost savings
  - A paradigm shift in infrastructure management
- **But, the major benefits are yet to be realized**
  - Cost savings, scalability, automation
  - Self provisioning, higher user productivity
  - Business flexibility
  - Others we have not dreamed of yet
  - A paradigm shift in *business*

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Virtualization security

Is virtualization so fundamentally different that it requires a different approach to security?

Yes, we do.

Approaches to virtualization security
(the more things change, the more they remain the same)

Security

- Network-based and host-based firewalls, intrusion detection/prevention systems
- Host-based anti-malware prevention
- Device and disk encryption
- Vulnerability and configuration management and remediation
- Network access control
- Network and storage encryption solutions
- Network behavior analysis and monitoring
- Etc, etc, etc

Virtualization Security

- Virtual Network and virtual host-based firewalls, intrusion detection/prevention systems
- Virtual Host-based anti-malware prevention (for example, antivirus for the host or hypervisor)
- Virtual device/disk encryption
- Vulnerability ,configuration management and remediation for virtual environments
- Virtual Network and VM access control
- Virtual network and storage encryption solutions
- Virtual network behavior analysis and monitoring
- Virtual Machine isolation and segmentation
- Hypervisor security, prevent escape from the hypervisor
- Etc, etc, etc

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The problem with legacy
(this is how we have always done it)

- **Standard US railroad gauge – 4 feet 8.5 inches**
  - That's the way it was built in England!
- **Railroad based on standard tramway gauge**
  - Same tools and same people built both
- **Based on standard spacing for wagons**
  - Had to match existing rut spacing on the roads
- **First roads (and ruts) were built by Imperial Rome**
  - Ruts were from Roman war chariots

The United States railroads are of 4'8.5" gauge because of the width of the wagon wheels of Imperial Roman war chariots!

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The problem with legacy
(this is how we have always done it)

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Why we need to do things differently

1. The increased criticality of data in virtual environments
2. The inevitable co-existence of virtual and non-virtual environments

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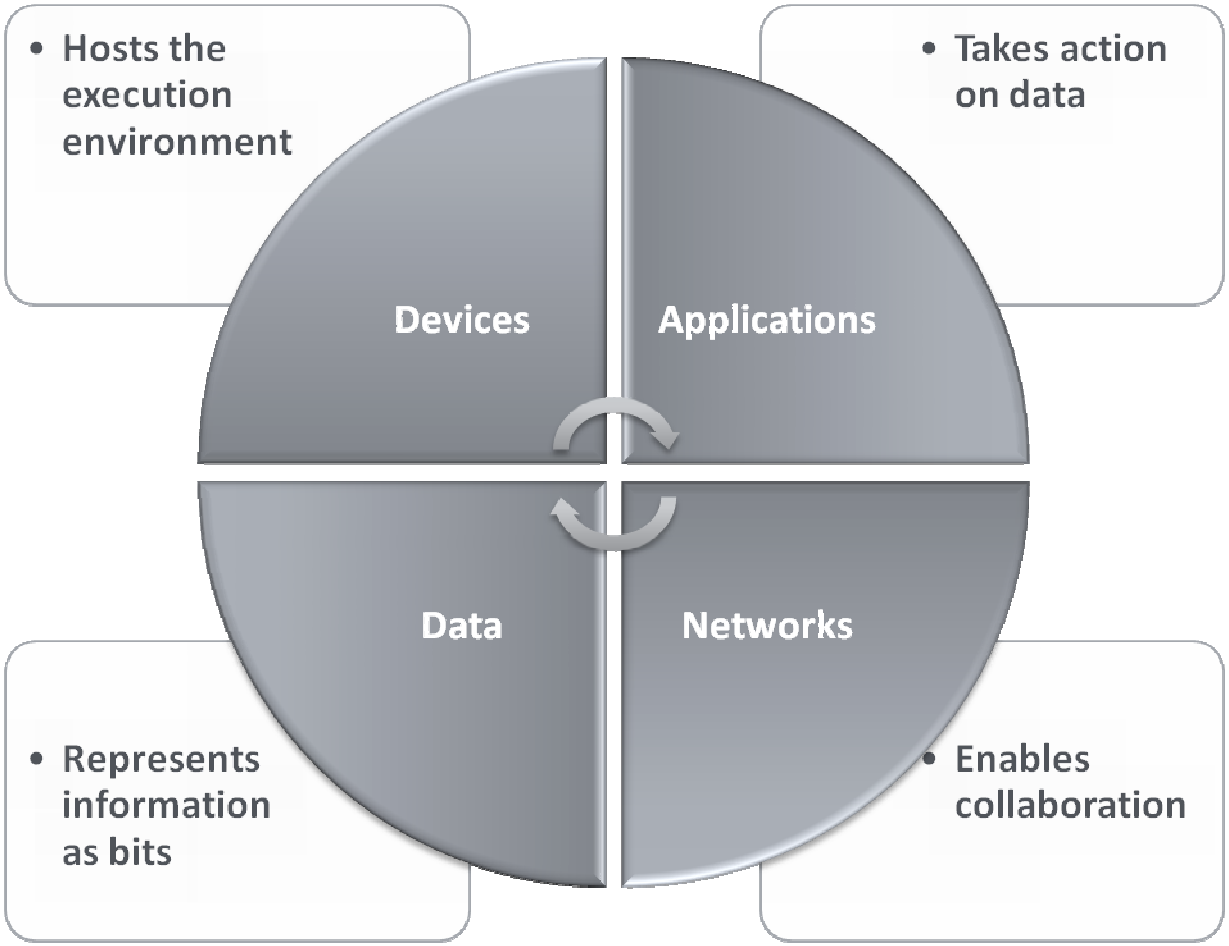
Back to basics – the computing environment



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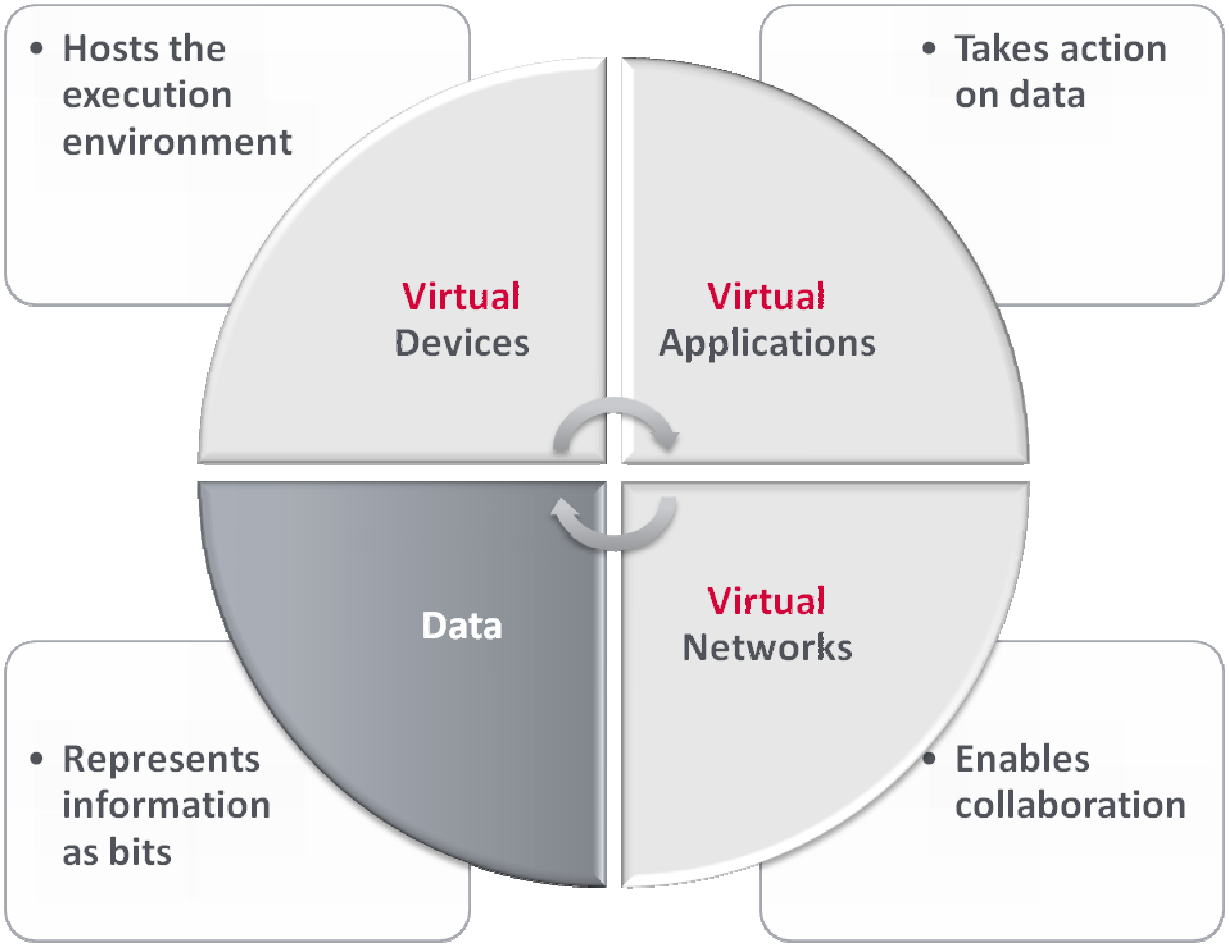
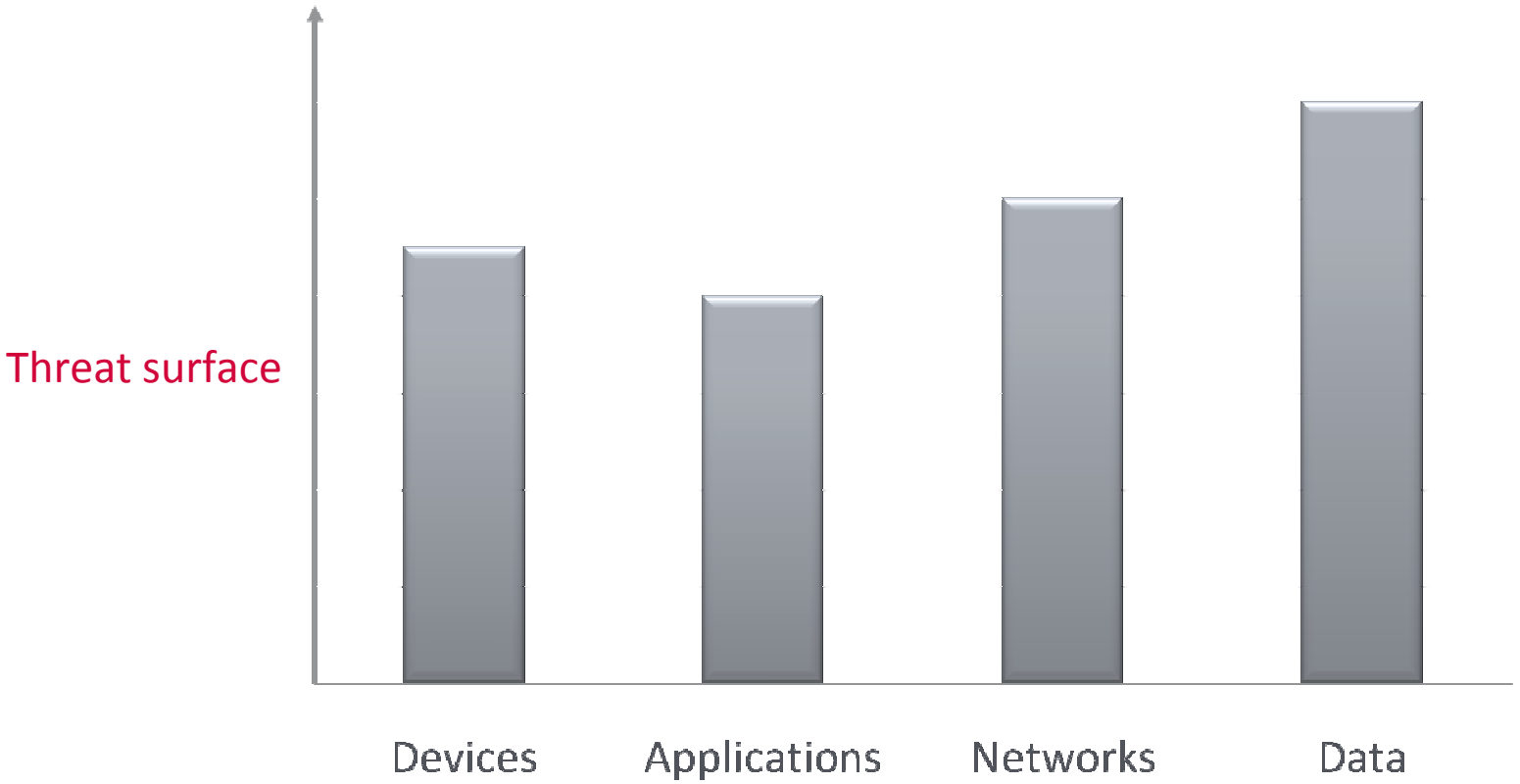
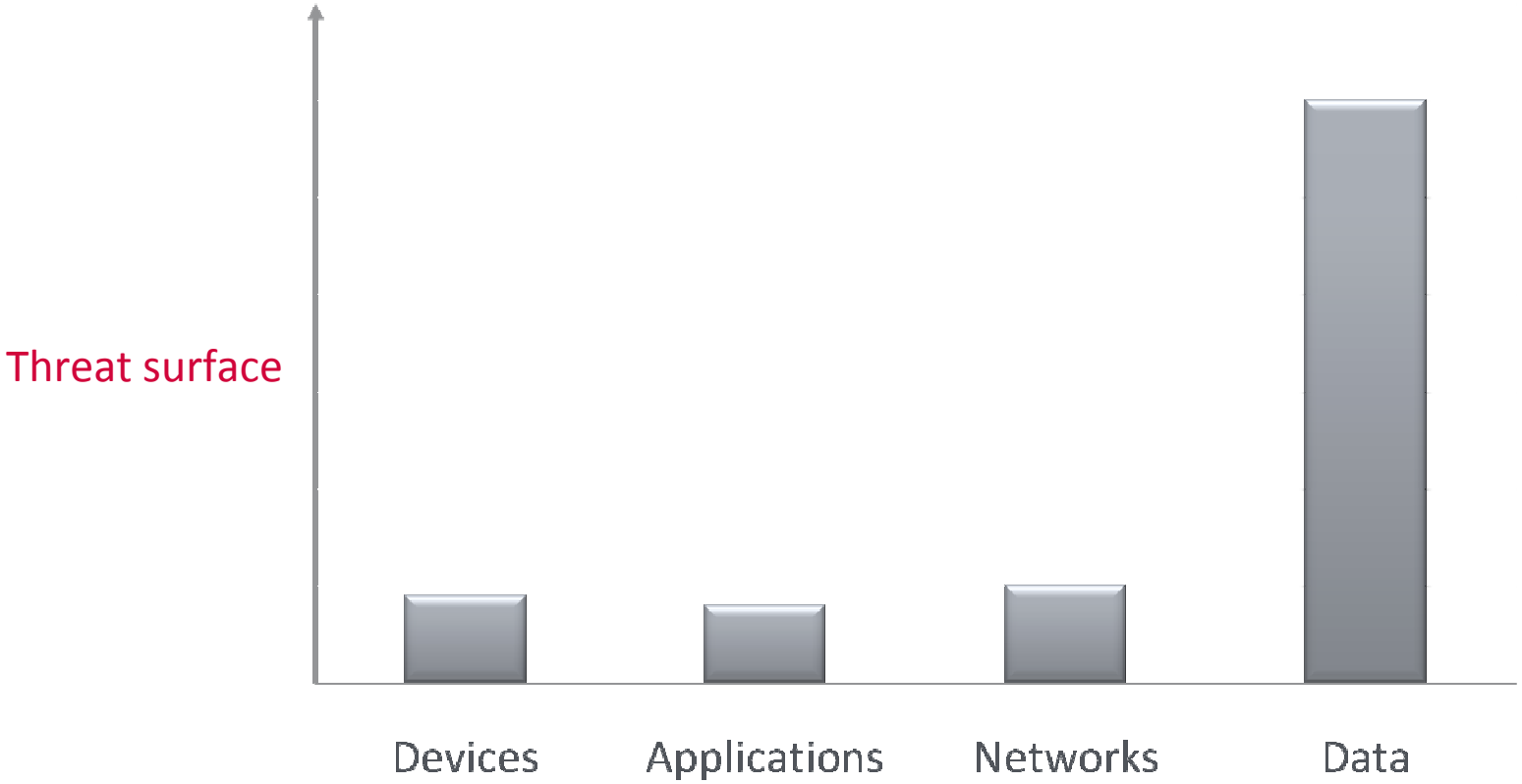
Virtualization – the computing environment



Threat surface of computing elements



Threat surface of virtual computing elements



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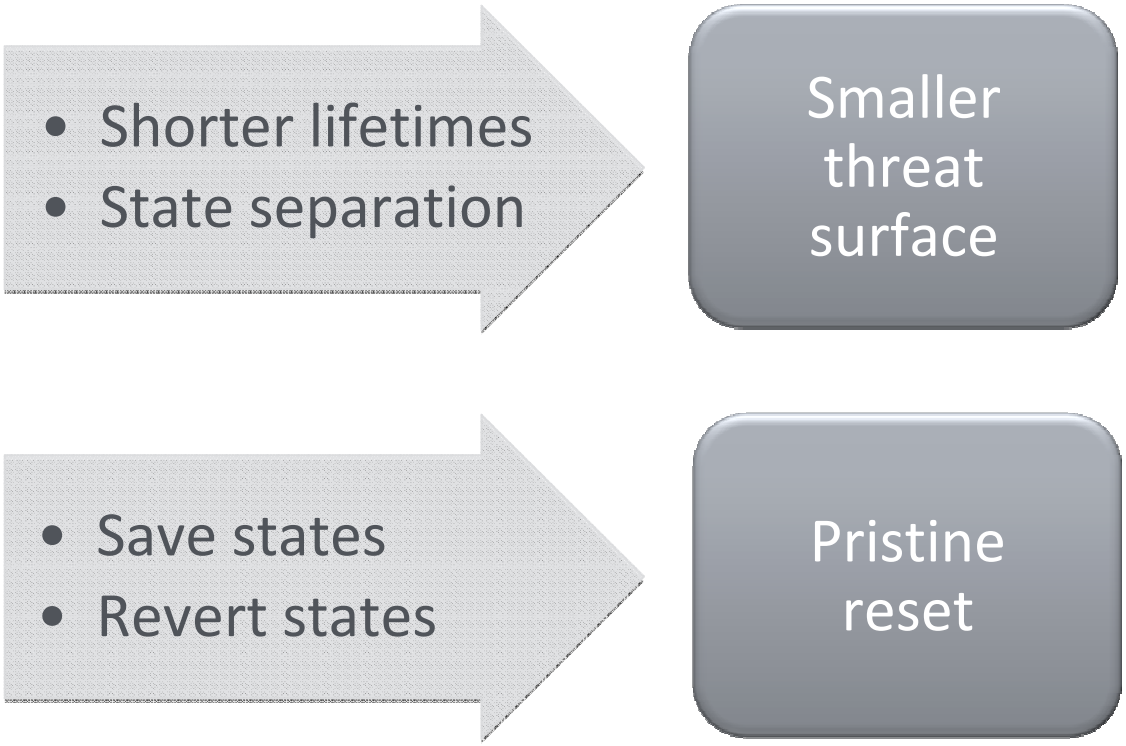
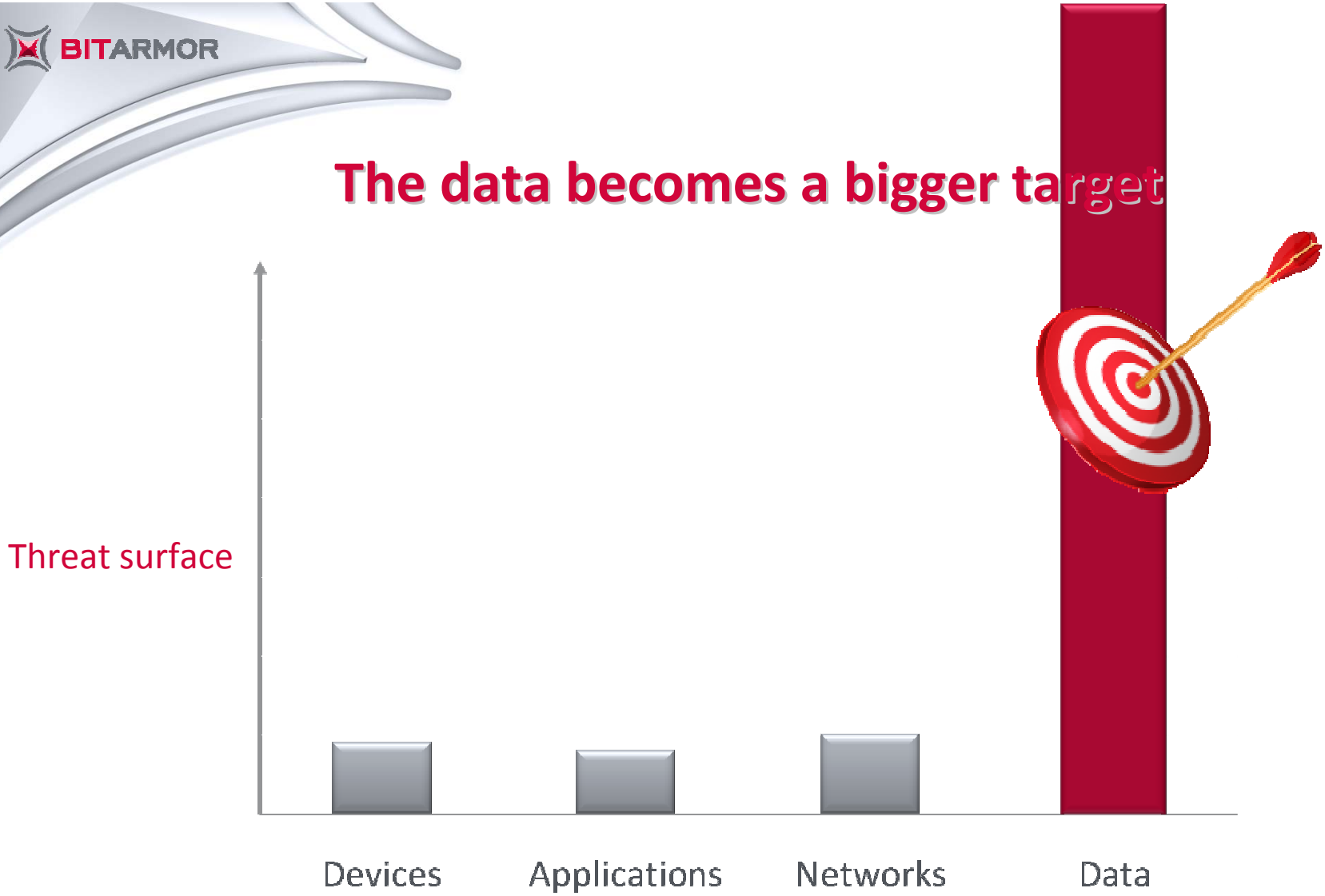
Impact to infrastructure security



The data becomes a bigger target



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- Etc, etc, etc

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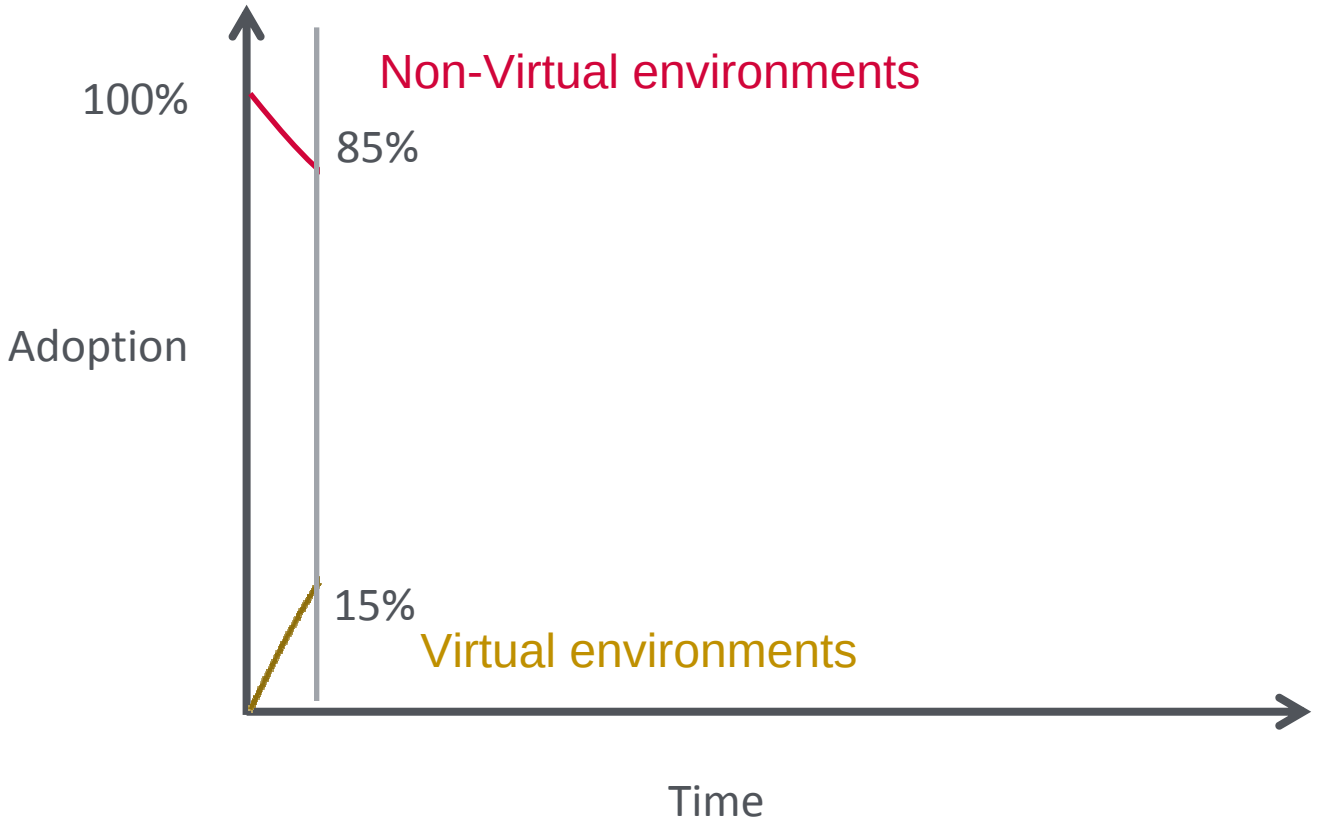
Are we focusing on what is important?

Why are we spending inordinate resources to protect the ephemeral virtual infrastructure while we pay little heed to protecting the long-lived data itself?

Growth of virtualization

The co-existence and duplication dilemma



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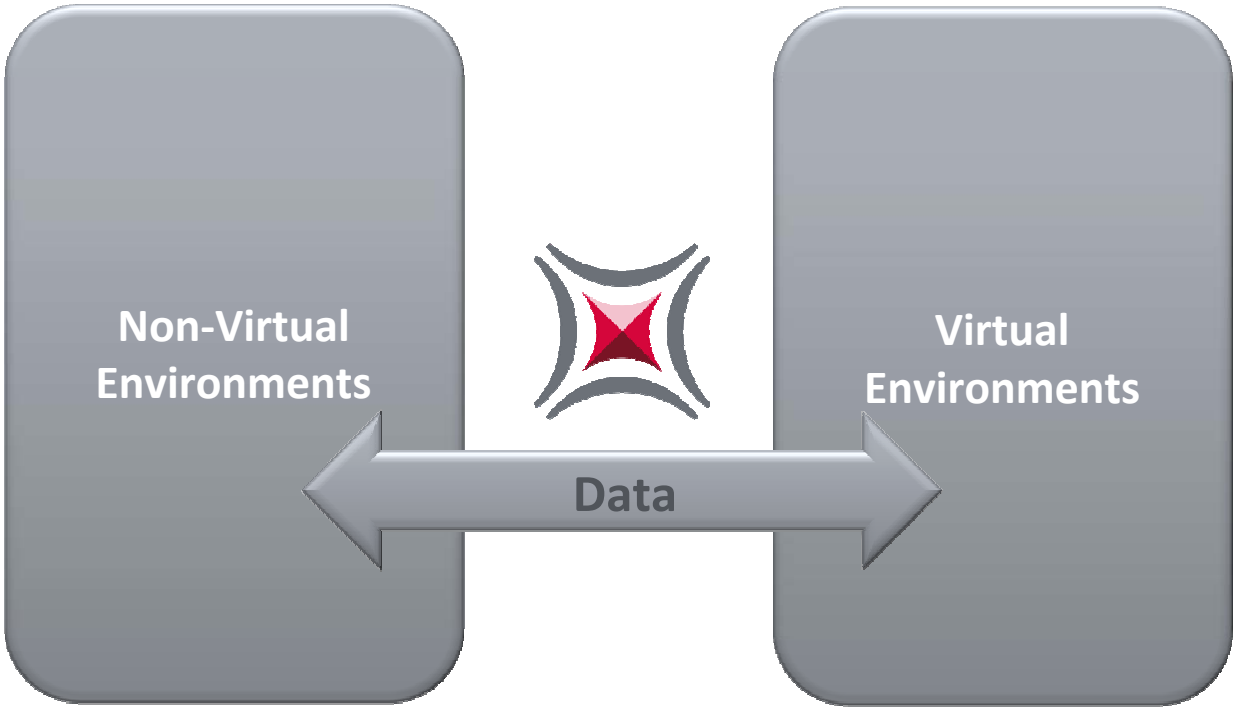
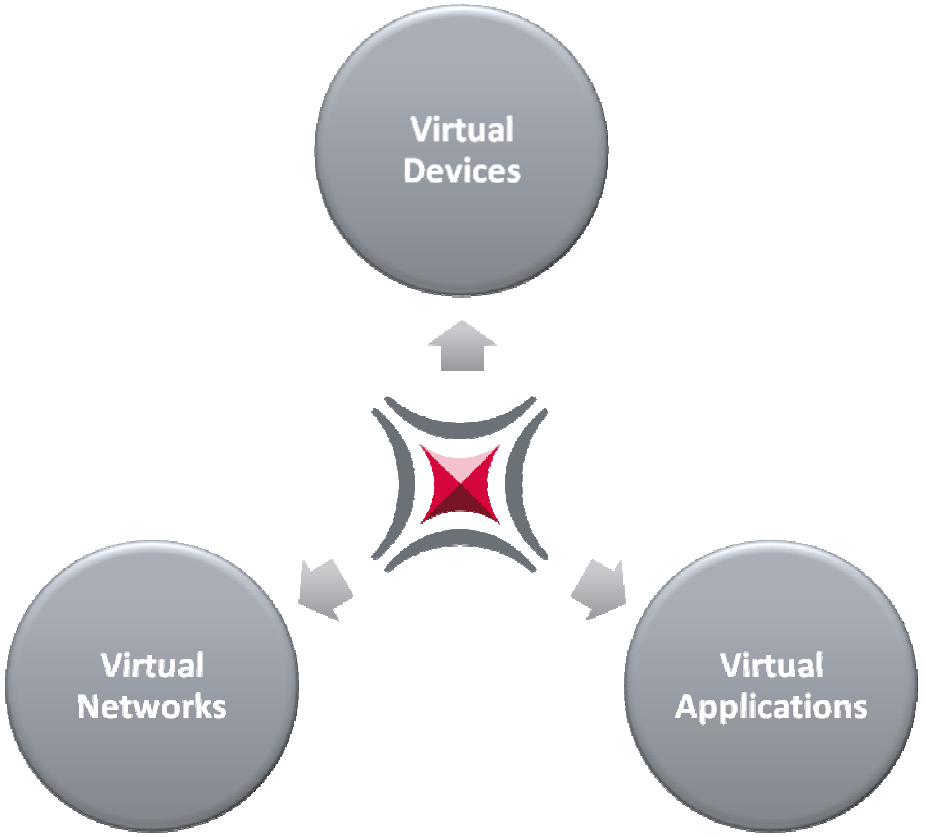


The only element that traverses between non-virtual and virtual environments is – DATA!

Protect the data, persistently!

The sane way to secure a dynamic virtual environment

- **The data**
  - Is the only element that cannot be virtualized
  - Has a longer lifecycle than virtual devices, networks and applications
  - Is the only element that moves between the virtual and non-virtual spaces
- **Device/perimeter-centric products not effective**
  - An **information-centric** approach is the **right** solution



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Example Scenarios

- **Desktop virtualization environments**
  - Accessing data on file shares, SharePoint, saving data locally, using a USB device
- **Application streaming**
  - Offline access to data, data in file shares/ SharePoint, data being emailed, leak prevention
- **Mixed environments**
  - Sharing data between virtual and non-virtual environments

About BitArmor

Smart Tag technology – an information-centric approach

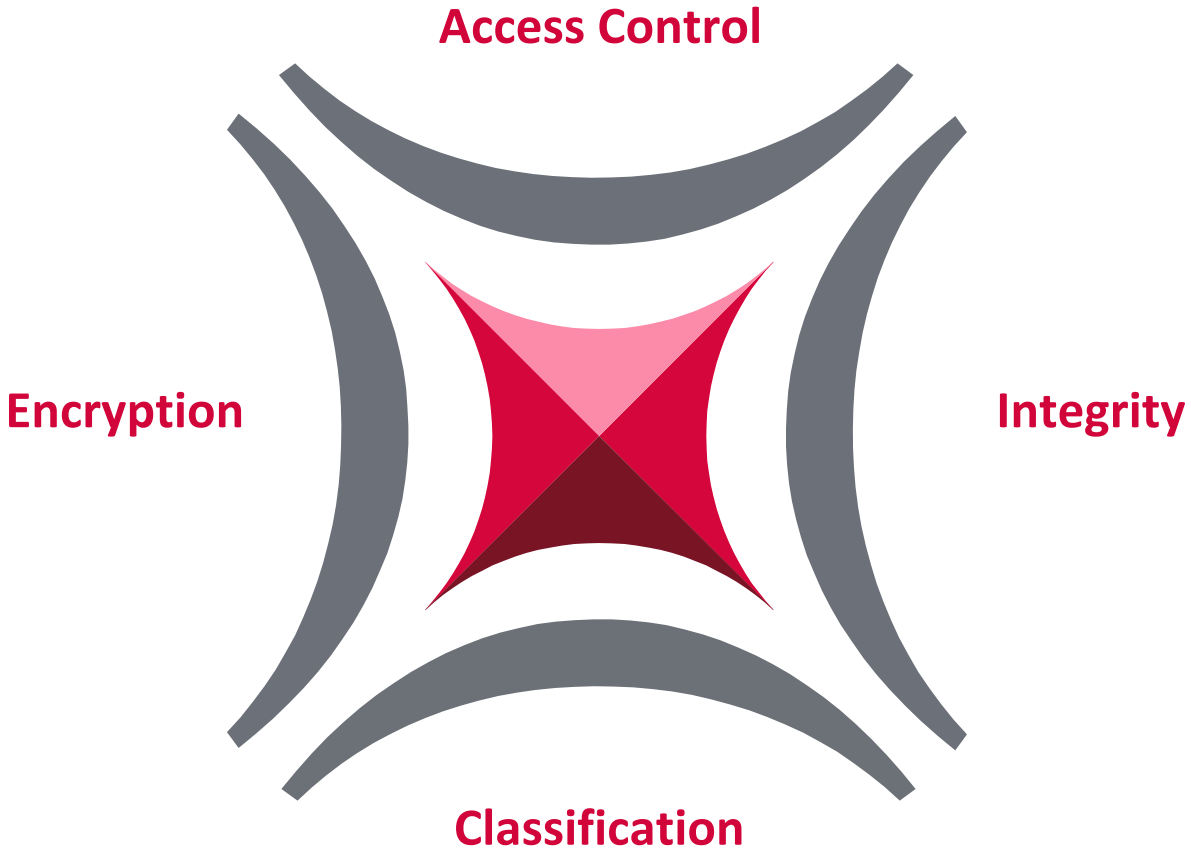
The BitArmor Smart Tag™

Protect data wherever it goes

- ***A unique information-centric security approach***
  - Attach protection policies to data itself
  - Policies travel with the data, giving you complete and continous protection

The BitArmor Smart Tag™

Protection policies that stay with the data



BitArmor
Solves Critical Data Protection Problems

- **BitArmor DataControl**
  - Protects data wherever it goes – inside and outside the organization
- **A single, integrated, data-protection solution**
  - Full disk encryption for laptops
  - Smart Tag enabled, ***persistent*** file encryption
    - Removable media protection
    - Email attachment protection
    - Network file share protection
- **The BitArmor No-Breach Guarantee™**
  - The industry's only guarantee against data breaches!

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Thoughts on evolving nature of security
(and what security is not)

- **Security is not about restricting data movement**
  - Security is about enabling secure sharing of data
  - Security should enable the business and not be a hindrance
- **Security is not about protecting devices/networks**
  - Security is about protecting sensitive data
- **Security is not just an IT problem**
  - If you, as the CISO, don't have buy-in from the business, you are toast

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Recommendations

- **Let virtualization "Be all it can be"**
  - Virtualization provides an opportunity for business to be responsive and dynamic as never before
  - Security should be an enabler, not a hindrance
- **Protect the infrastructure, but focus on data**
  - Basic virtual infrastructure protection is essential, but let's not go overboard
  - Take advantage of statelessness and reset
  - Let data move about, but let it remain protected at all times – i.e. persistent and information-centric protection.