

A decorative graphic consisting of multiple parallel, wavy lines in various colors (purple, blue, orange, grey, green) that flow from the left side of the slide towards the right, creating a sense of movement and data flow.

Securing File Data in a Distributed or Mobile World

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Abstract

- When an organization has a distributed or mobile workforce or requires executives or key personnel to work from home, the issue of securing the business critical data becomes especially problematic. In most cases today, responsibility for the security of the file data is left up to the individual end user. Theft or even the borrowing of the mobile device leaves critical file data exposed. The rapid growth of BYOD (Bring Your Own Device) brings cost savings and efficiency for organizations but also a greater risk of security breaches. Today, no control or reporting of use of critical data on mobile devices is possible and this creates regulatory problems.

Agenda

- Why data security is needed
- What data needs to be secured
- Where file data resides
- What threats exist against file data
- Distributed file data
- Mobile file data

- Conclusion

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and Disaster Recovery - New
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Computing
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Why data security is needed

- ◆ Perimeter defenses are ineffective today according to security professionals
 - ◆ 31% acknowledge their perimeters have been breached in the past
 - ◆ Only 19% are confident the network security industry is able to detect and prevent breaches
 - > 33% have become less confident
 - > 49% have no confidence at all
- ◆ 59% said that if a network perimeter breach occurred, high value data would not be safe
- ◆ 66% believe they will suffer a breach within the next 3 years

Why data security is needed

- ◆ 95% continue to invest in and employ the same data security strategies (Network perimeter security)
- ◆ 35% state they know their security investments are being deployed to the wrong technologies
- ◆ 20% would not trust their own personal data to their own networks

So what does all this mean?

- ◆ We need to accept that breaches WILL happen and once they do, the only protection is to secure the data itself
- ◆ **The new perimeter is the data itself – we must Secure the Breach**

Dover Castle ca. 1216 – never breached



All the really important stuff was in the keep

Multiple perimeters

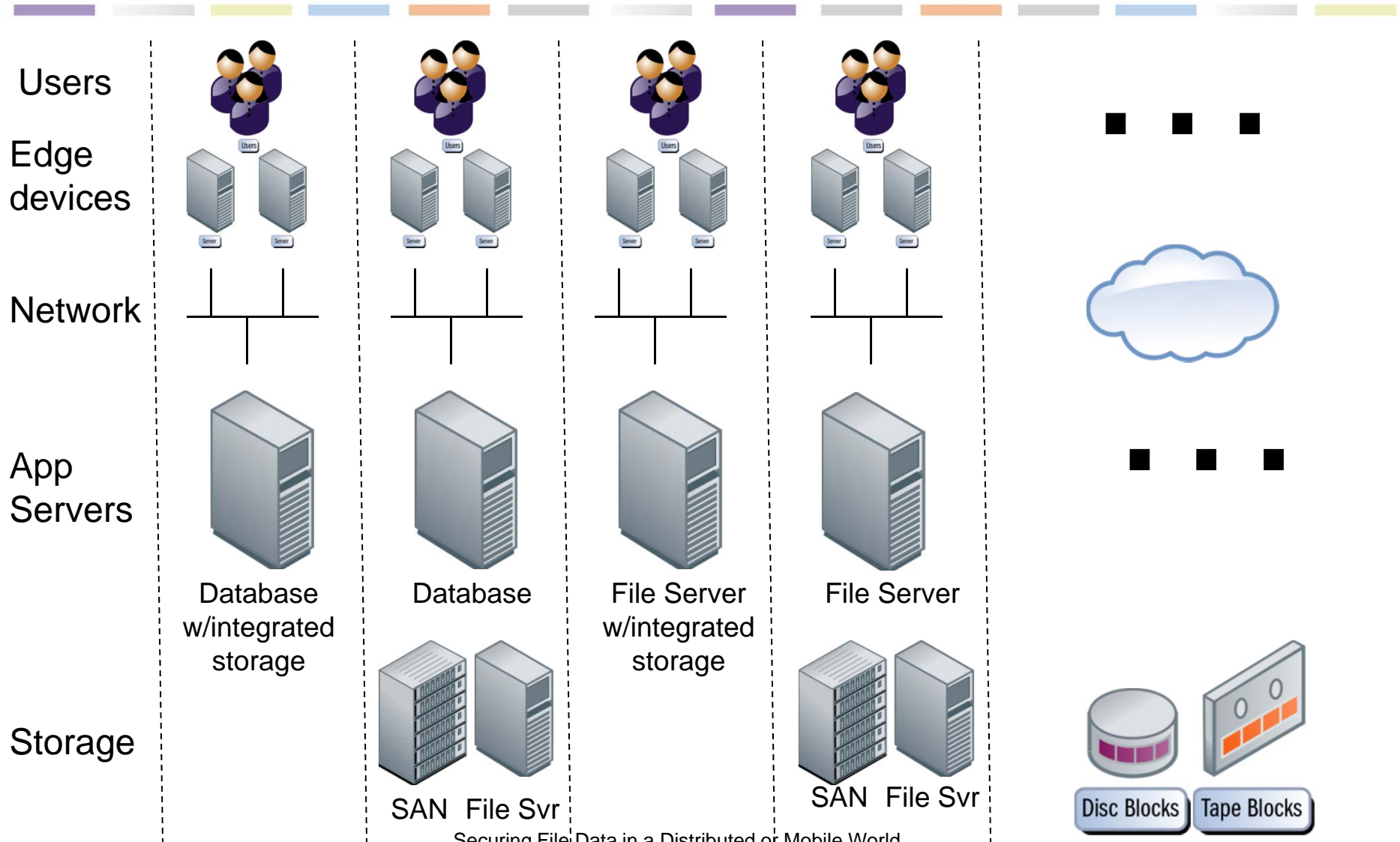
What data needs to be secured

- Typically there are four categories of file data that need to be secured:
 - ◆ Classified Information
 - › Governmental, Military, Intelligence - strict hierarchical schemes, etc.
 - ◆ Regulatory Compliance
 - › Current: HIPAA, PCI, PII, etc. – binary – no shades of gray
 - › Future ?: GDPR (General Data Protection Regulation), Right to be Forgotten
 - ◆ Confidential information
 - › Intellectual property
 - › Proprietary information
 - › Competitive data, etc.
 - ◆ Anything else for any other reason
 - › Whenever there is a need, whatever it is, good or bad!

Does it ALL have to be secured

- ◆ It depends on a number of factors:
 - ◆ Identification
 - › Do you know where ALL your critical data may reside
 - ◆ Relevance
 - › Is it possible to segregate relevant from irrelevant
 - › Can you be sure you can identify ALL the relevant data
 - ◆ Quantity of data
 - › Column level encryption
 - › Tokenization / Obfuscation
 - › Deduplication, Compression before securing
 - ◆ Impact of revelation
 - › Can you afford the immediate cost
 - Monetary penalties, business restrictions
 - › Can you afford the longer term cost of loss of reputation

Where file data resides in the datacenter



Where file data resides

➤ In main datacenter(s)

- ◆ Application server – local/shared file system
- ◆ NAS server – local/shared file system
- ◆ User desktop – local file system
- ◆ Backup device – local tape or disk
- ◆ Archive device – remote tape or disk
- ◆ Virtual Machines – when not running
 - Clones, snapshots

Where file data resides

- Distributed locations, remote offices
 - ◆ App server – local/remote file system over VPN
 - ◆ NAS server – local/remote file system over VPN
 - ◆ User desktop – local/remote file system over VPN
 - ◆ Backup device – local/remote tape or disk, external drives
 - ◆ Virtual Machines – when not running
 - › Clones, snapshots

Where file data resides

➤ Mobile

- ◆ User mobile device – local file system
 - Support for local apps may not be possible
- ◆ USB drive, external drives
- ◆ Secure Computing Environment



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- Mobile devices exist in many previously locked down locations
- Mobile data stores are everywhere and rarely secured
 - ◆ Home backups, cloud backups, USB sticks, smartphones
- With BYOD, this problem goes exponential!

What threats exist against file data

- Assuming all file data that is critical is encrypted:
- Distributing to remote locations can expose centralized keys
- Distributing to mobile devices can expose data as well as keys
- Database reports and extracts
 - ◆ Written to desktops, mobile devices, removable storage, etc.
 - ◆ Data leakage when further distributed via email, etc.
- Data exposure to unauthenticated people
- System administrators posing as authenticated users
 - ◆ **80%+ of all actual breaches are internal**

Distributed File Data – remote access

- File data in a central datacenter can be accessed remotely with a high level of security and auditability
 - ◆ VPNs, Two Factor Authentication, etc.
- Centralized access results in good access control, policy enforcement, auditing and reporting
 - ◆ Alerting essential for real time response and prevention
 - ◆ Auditing and reporting essential for post mortem investigations and compliance evaluation
- End points can be authenticated in real-time
 - ◆ Varying levels of authentication depending on user, platform, location, information accessed ,etc

Distributed File Data - inbound

- Moving or copying file data from remote sites to datacenters can be managed with careful planning
 - ◆ Daily replication/copy to HQ over secure tunnels
 - ◆ Backups to HQ over secure tunnels
- File data can be re-encrypted as it arrives
 - ◆ Depending on policy, etc.
 - ◆ Key versioning and tracking necessary

Distributed File Data - outbound

- ◆ Moving or copying file data from a datacenter to a distributed or remote location is problematic
 - ◆ Cannot use same encryption key as primary file data
 - › File data usually encrypted on a per-share or per-folder basis rather than per-file
 - › Means file must be duplicated and encrypted with a different key before sending
 - › Means the key management system must track multiple keys per file (like versioning) to support secure destruction
 - ◆ Once file data is remote, access and auditability is a problem
 - › Key exchange with remote location exposes key
 - › Offline access to file bypasses real-time authentication
 - ◆ Detecting file data changes when file is returned to datacenter
 - › Results in multiple copies of file data
 - With multiple keys

Mobile File Data – even more problematic

➤ Moving or copying file data from a datacenter to a mobile device is even more problematic:

- ◆ Loss of mobile device
 - › Can be mitigated with FDE (Self Encrypting Drives)
- ◆ No control over who, when or where data is accessed
 - › Only if online authentication is mandatory (not possible in many situations)
- ◆ Pre-upload is normally required
 - › Copy files onto device before leaving for business trip
 - › Means keys must also be pre-loaded
- ◆ Duplication of file data to same or alternate mobile devices
 - › Including keys
- ◆ Saving of cleartext file data to removable devices



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Conclusions

- We need to accept that network perimeter breaches WILL happen – the new perimeter is the data itself
- An insider is your biggest threat
- Different file data categories need different protection schemes
- A centralized reporting and auditing capability is important
- A centralized alerting capability is essential
- File encryption cannot succeed without fully integrated authentication, access control, and key management
- **We must Secure the Breach**

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Attribution & Feedback

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