Data Protection 101

Successes, Fails, and Fixes

What is Data Protection?

- Data Protection is also known as Data Loss Prevention (DLP). It is the discipline of protecting your organization’s confidential data assets from being disclosed to unauthorized parties.
- Protect data
    - At Rest
    - In Motion
    - In Use

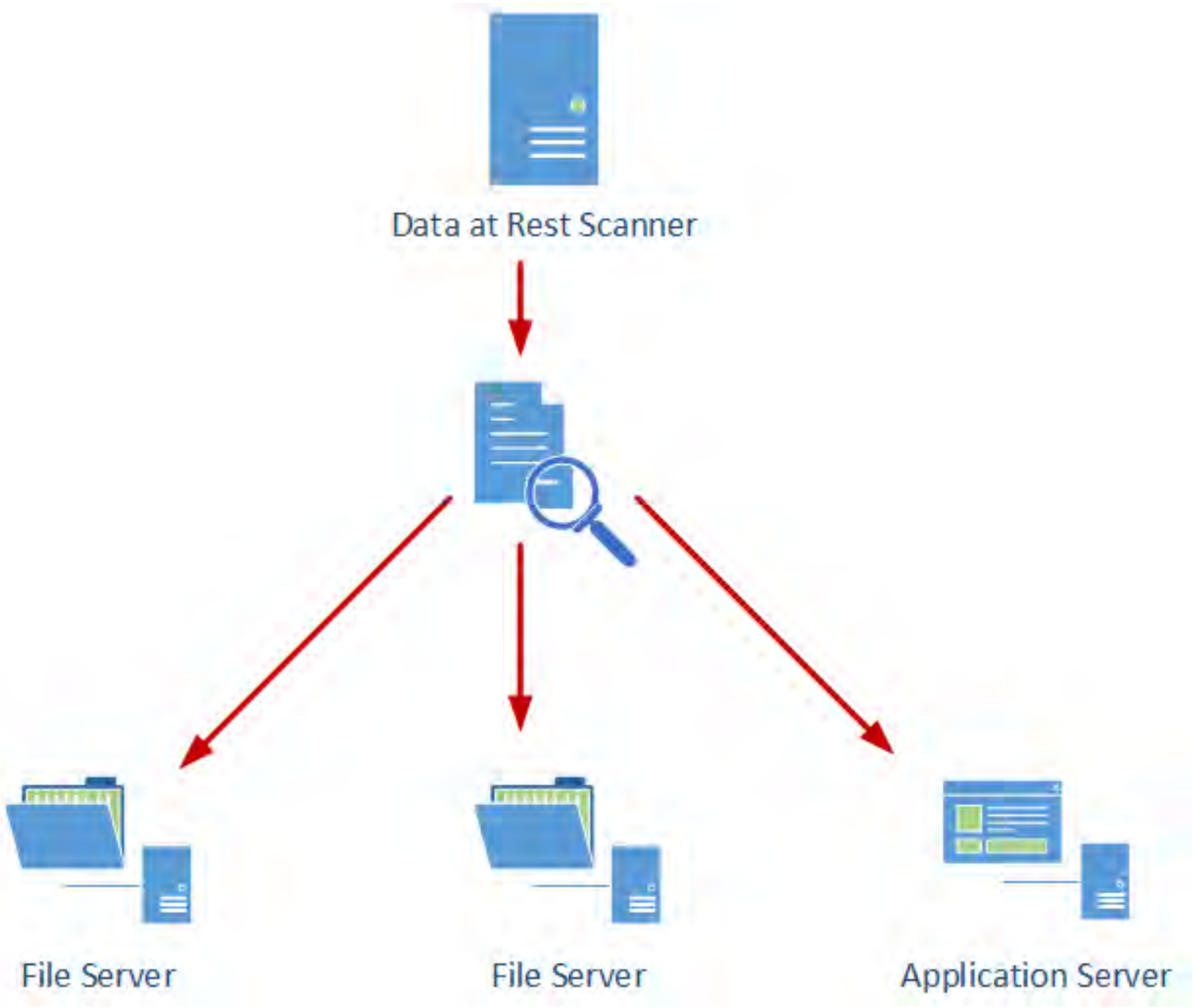
Data Protection Recipe for Success

- Know your data!
  - Know what type(s) of data you're protecting.
  - Know where your data should and shouldn't reside.
  - Know who should have access to data.
  - Know what constitutes acceptable use.
- Policies are your friends.
  - Define policies around proper handling of data.
  - Do your policies comply with legal and regulatory requirements?
- Don't forget training!

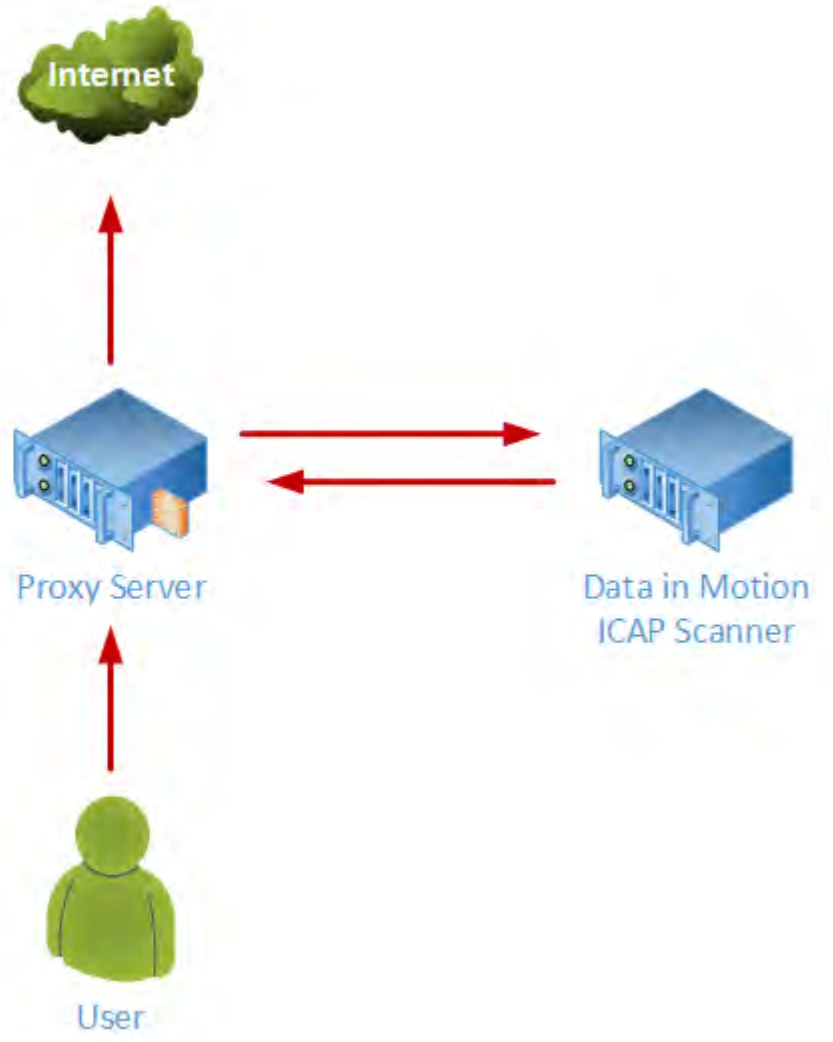
Data Protection Recipe for Success

- Plan your incident response.
  - What happens when you detect data leakage?
  - Set reasonable and appropriate thresholds.
- Configure scanners for:
  - Data at Rest
  - Data in Motion
  - Data in Use

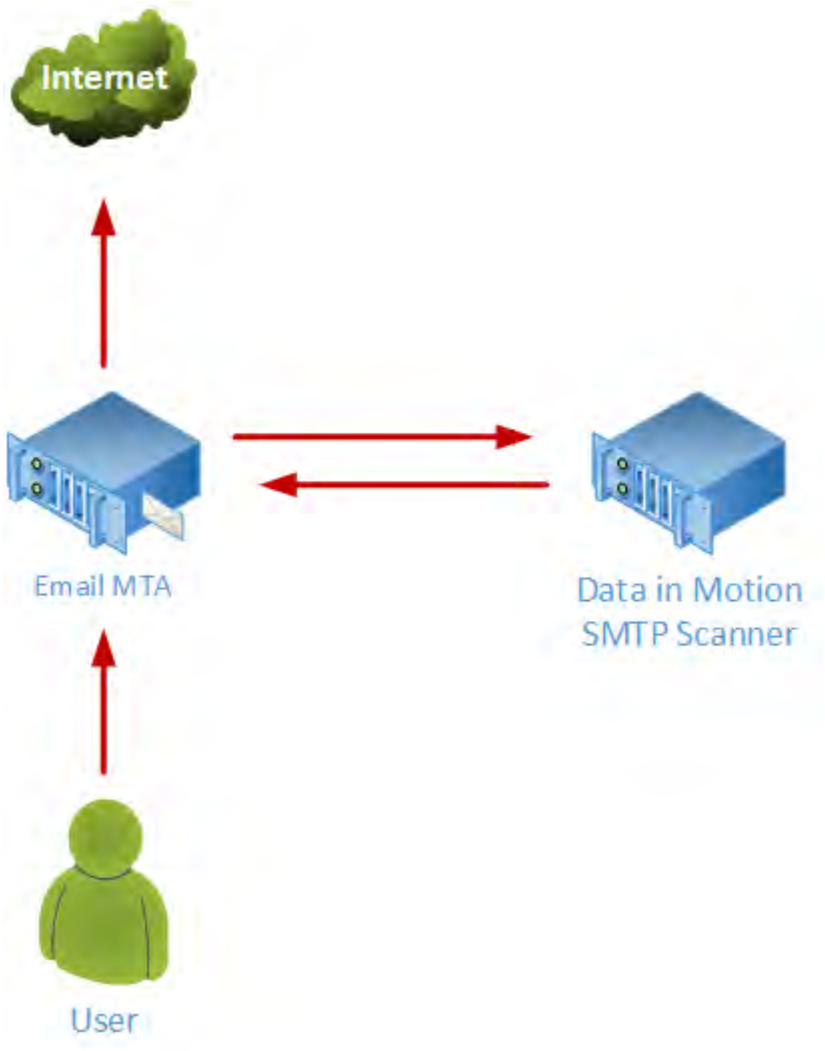
Data at Rest


Data at Rest Scanner
File Server
File Server
Application Server

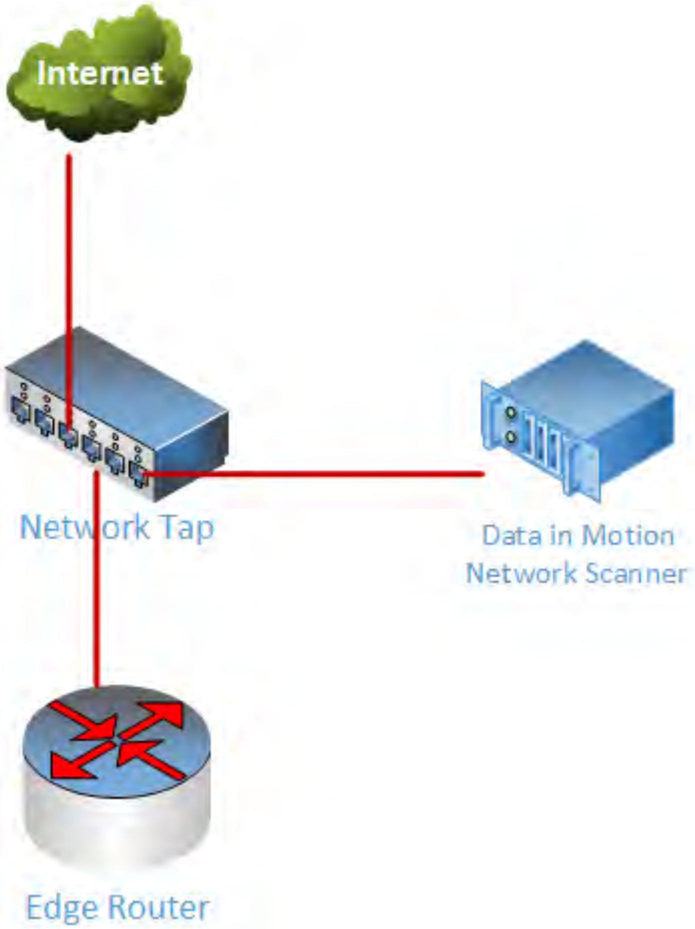
Data in Motion (Web)



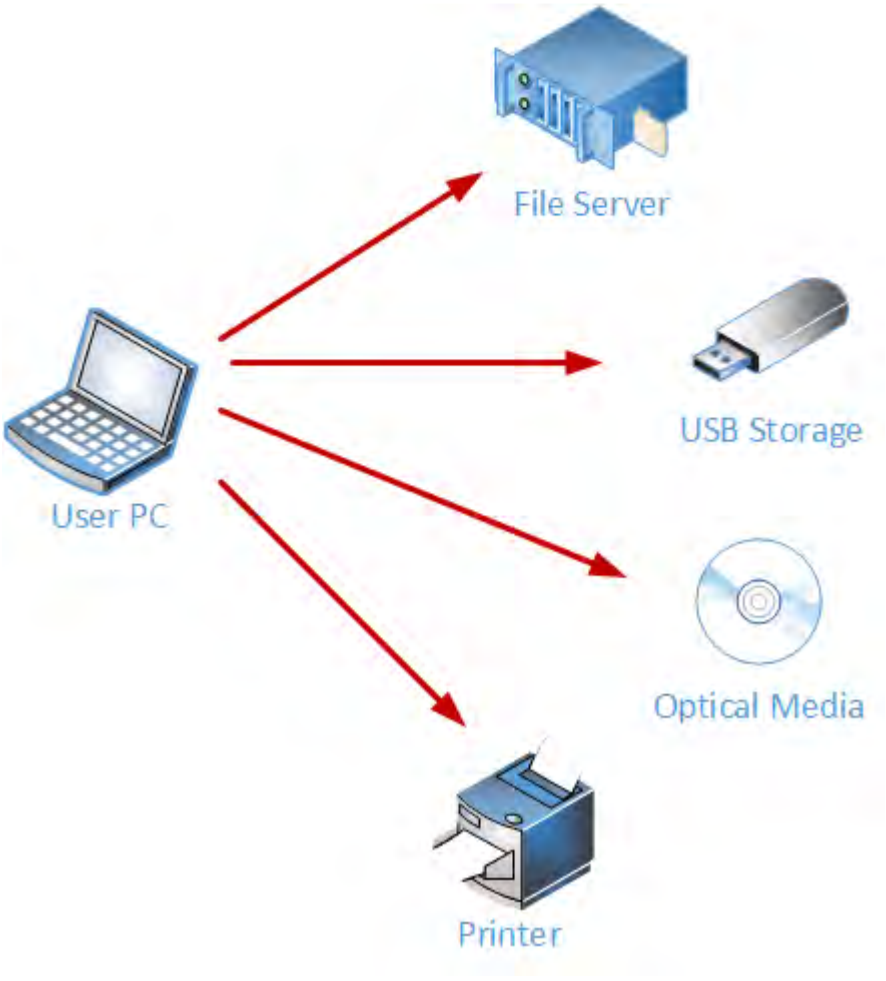
Data in Motion (Email)



Data in Motion (Network Tap)



Data in Use

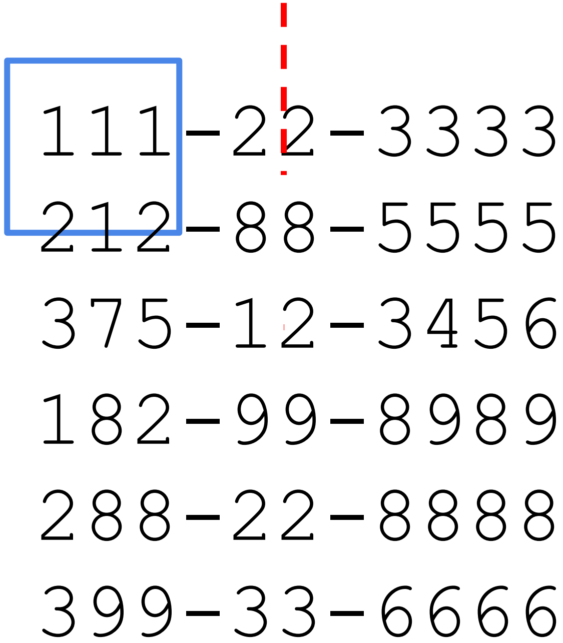


Data Protection Technologies

- Pattern matching
    - Basic method to recognize account numbers, etc.
    - Standard watermark for confidential documents
    - Pros and Cons
- Exact data matching
    - Index your known confidential data, both structured and unstructured
    - Match on combinations of fields
    - Pros and Cons

Data Protection Fails

- Pattern matching produces false positives
- Encrypted data
- Encrypted of split data, e.g.:
    - Breaking 9-digit SSNs into separate files
    - Breaking down documents into small chunks
- Low-and-slow leakage



111-22-3333
212-88-5555
375-12-3456
182-99-8989
288-22-8888
399-33-6666

Splitting up a list of SSNs into separate files will defeat exact data match

111-22	3333
212-88	5555
375-12	3456
182-99	8989
288-22	8888
399-33	6666

Data Protection Fixes

- Defeating encryption
  - SSL Intercept
  - Block or log encrypted files
- Combine pattern match and exact data match technologies
  - Set rules with thresholds
- Log all detected events

Data Protection Fixes

- Use Big Data techniques to aggregate events
    - Correlate low-and-slow leakage
    - Risk ranking based on user profile and access levels
    - Track data usage for anomalies (volume)
- Apply enhanced user/workstation monitoring to high-risk individuals

Conclusion

- Policies and organizational commitment needed.
- There is no one size fits all solution.
- Balance aggressiveness of controls versus permitting business to run.
- You may not be able to eliminate data leakage but you can mitigate the risk.
- Think beyond traditional Data Protection techniques.

Q&A

Peter Teoh

Twitter: @pteoh