
Security and Data Restoration

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Who am I?

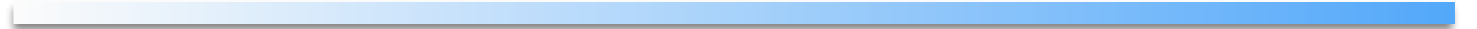
- UC Berkeley graduate
 - UCSD staff, 10 years
 - Database administrator for a total of 18 years
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Summary

- Which data can go bad in a business
 - What options are available once data goes bad
 - Backups are good! Do you know if they work?
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Where can data go bad?

- Data entry
 - Not covering that topic today
- Workstations and laptops
- Servers

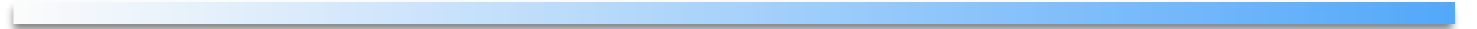


Workstations and Laptops

- Hard drive failure
 - Email viruses
 - Ransomware, either drive-by (web) or USB
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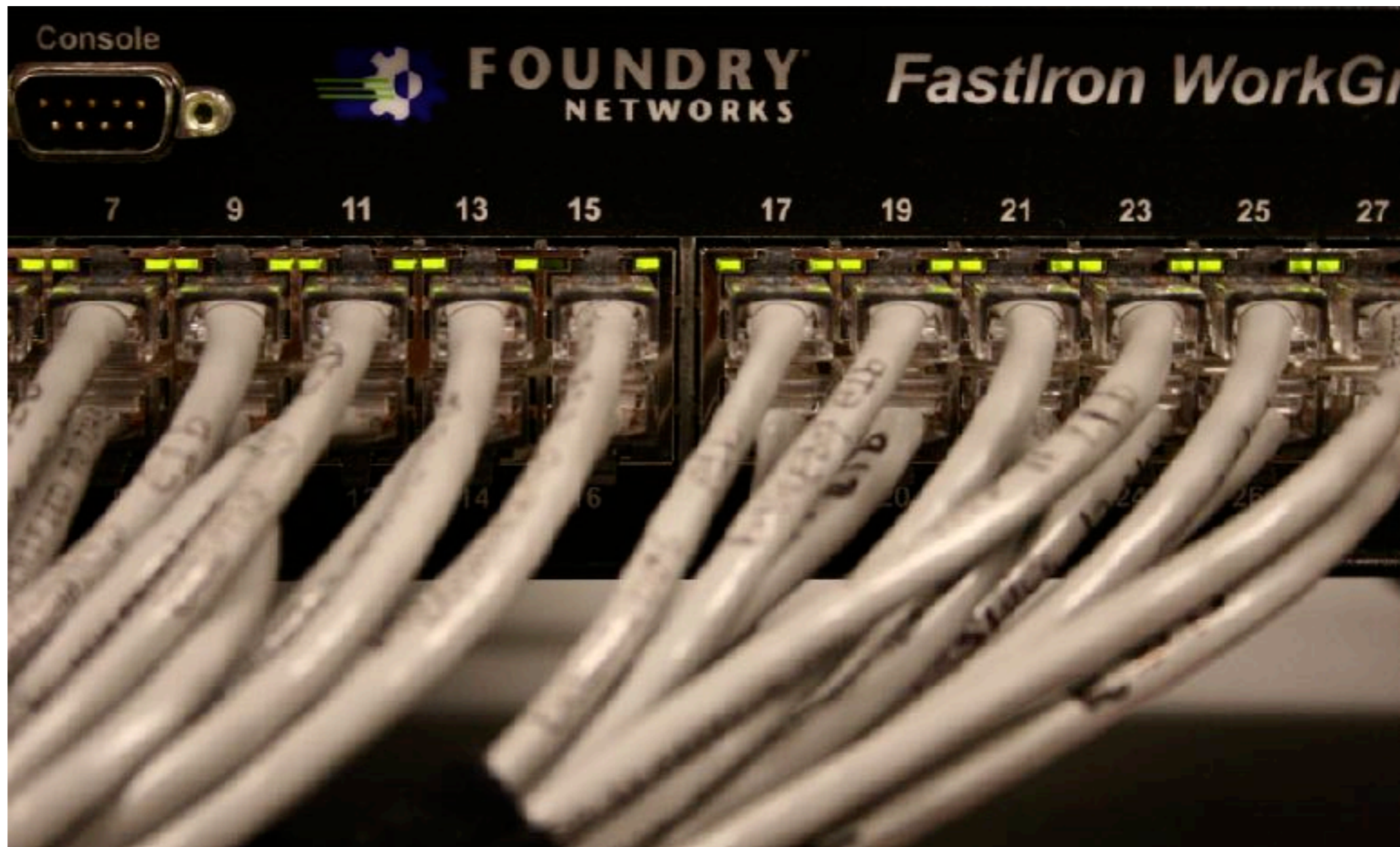
How can server data go bad

- Hard drive failure
- Ransomware





How to protect data





How to protect data on desktops and laptops

- Stay current on software patches
- Backup software
 - Retrospect, Carbonite and many, many others
- External hard drives running as backups
 - Time Machine (macOS), Symantec Ghost, Clonezilla
- Additional backups off site



Restoration of desktops and laptops

- Wipe disk, then restore good full backup to disk
 - Operating system, application, user data
- Wipe disk, load disk image, load user data
 - OS and applications bundled into one image, ideally
 - Usually, one master disk image loaded, then individual user data folders must be found and loaded



Disk image products

- Clonezilla (open source)
- Symantec Ghost and competitors (Windows)
- Carbon Copy Cloner (macOS)



How to protect data on servers

- Stay current on software patches from Microsoft, Apple and Linux vendors
 - This would have protected machines from WannaCry ransomware attack in May 2017
- Server backups - bigger problem since hard drives are much larger than individual workstations
 - Windows Server Backup - default but slow
 - NovaBackup Server, Carbonite, and other products



Backups are great, but do they work?





Backup Testing

- Ideally, testing done before it is needed
 - How? Find an appropriate machine and load everything needed. Does it now work?
 - Yes? Great! Review processes and procedures and write it down as documentation.
 - No? Find out why and fix it before the time comes where you need to load a backup.
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Backup testing

- Where to find desktop
 - Locally: Probably have some machine available. (Loaner laptop, empty office from person who left recently ...)
 - Cloud: images available to use
 - Charged by hour. Machine use may be suspended overnight to avoid payment for non use



Backup testing

- Where to find a server
 - Locally: much harder to find a idle machine big enough to handle a server installation.
 - Cloud: images available to use that can handle server installation and testing
 - Charged by hour. Machine use may be suspended overnight to avoid payment for non use
 - All images can be eliminated when testing concludes.



How To Run A Backup Test





Running the Test: Workstations

- The procedure depends on the backup software/hardware used.
- Generally speaking, wipe the machine's hard drive, start backup/archive software on different machine, load backup back to original machine.
- Usually, Windows installation included, but this might be an additional (step 0) surprise.



Running the Test: Workstations example

- Not a demo, but screen shots using AWS cloud image



Running the Test: Servers

- Procedure generally the same, but it will take longer due to larger hard drives used on servers
- The procedure depends on the backup software/hardware used.
- Generally speaking, wipe the server's hard drive, start backup/archive software on different machine, load backup back to original server.



Running the Test: Server example

- Not a demo, but screen shots using AWS cloud image



Any questions?



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