Flash Forward for Reliable Data Protection and Recovery

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Protection Against What?

- Earthquake

- Fire

- Weather Hazards

- Flood

- Terror

- Infrastructure Failure

Meeting the Challenge – Introducing EDR

Enterprise Data Recording (EDR)

Resilient storage (Black Box) for Data Centers.

EDR enables survivability of data - through disasters

Changes everything we knew about DR!

The Black Box Concept – A Very Resilient Storage

- Earthquake, Weather, Floods, Fire, Terror
- Direct fire of up to 2000°F (1100°C) for an hour
- 482°F (250°C) for 6 hours
- 400G shock
- 5000 lb (2.3 ton) of weight
- 30 feet (10 m) water pressure
- Pierce force of 500 lb (230 kg) rod with cross-section of .04 in2 dropped from 10 ft height

The Black Box Concept – The Phoenix System®
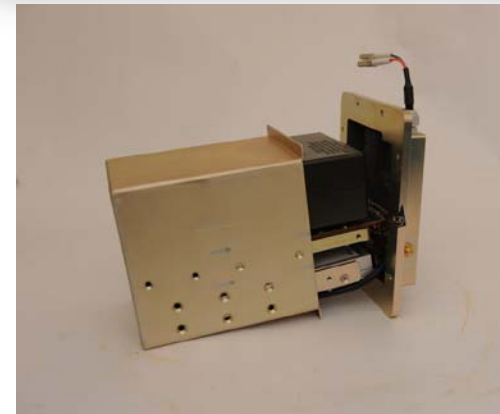
Storage Requirements

1. Shock and vibrations resiliency

2. Low power consumption

3. High write throughput

4. High capacity

SSD Based Solution

Only Solid State Drives can fulfill the first two requirements, but how about throughput and capacity?

Replication Techniques

Current replication techniques are incomplete

- Synchronous replication

  - Every write IO secured at remote site before commit

  - No data is lost in case of a disaster

  - Limited distance between sites(50 km – 100 km)

  - Need for peak throughput lines

- Asynchronous replication

  - Writes are secured at remote site by an off line task

  - Some data is lost in case of a disaster

  - Unlimited distance between sites

  - Need for average throughput lines

The Ultimate Replication Solution

- No data loss in case of disaster

- Unlimited distance between sites

- Average line throughput

- Cost comparable to asynchronous replication

The Ideal Implementation
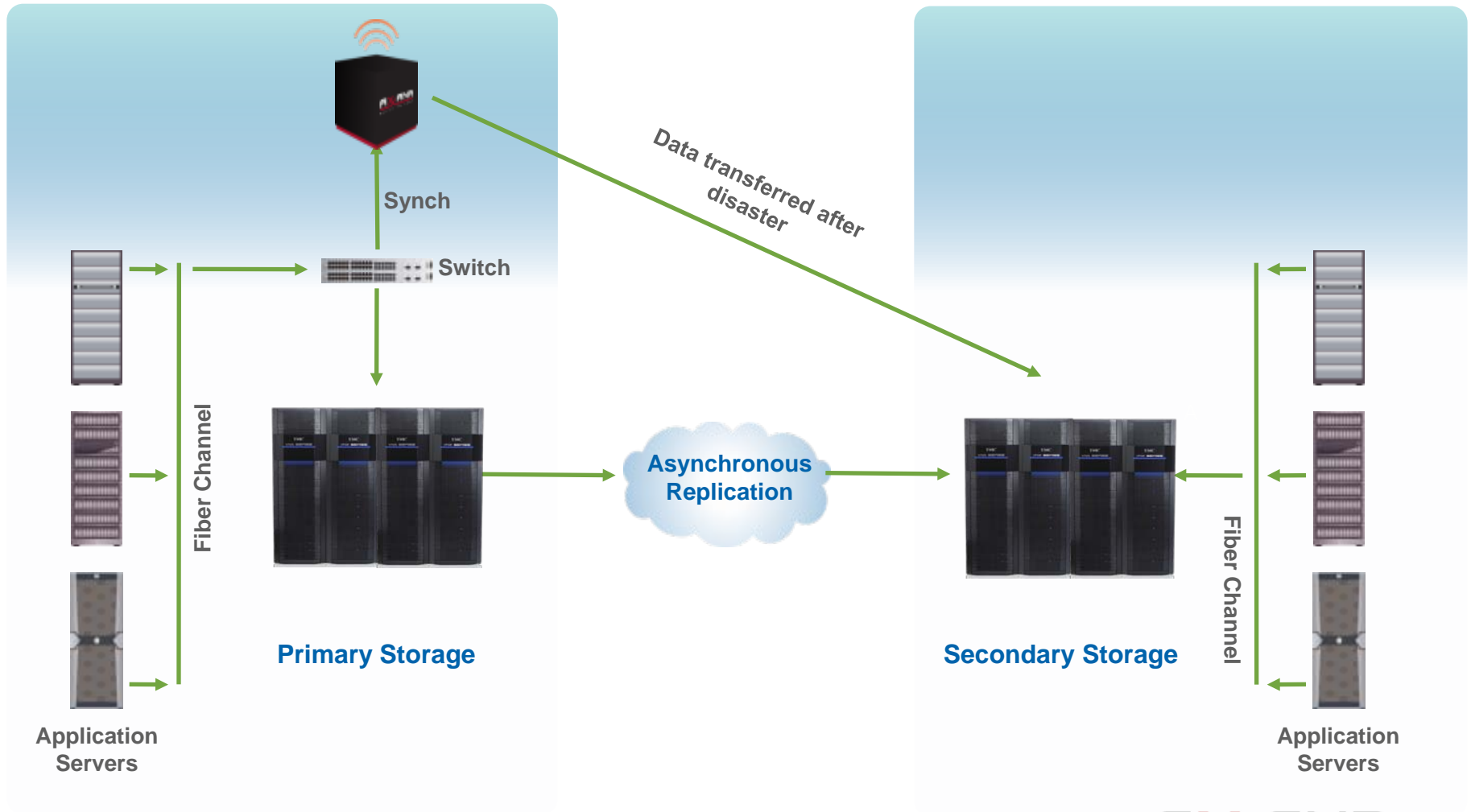
How Does it Work

- Stores in the black box a circular log of all updates to the replicated volumes

- Deletes the updates when data secured at remote site

- After disaster data from black box forwarded to remote site via
  - Ethernet if possible
  - Laptop directly connected after disaster to black box
  - Wireless communication
    - Regular cellular network
    - WiFi or Cellular directly to a nearby Laptop (next version)

The Selected Solution

- STEC ZEUS IOPS Gen 3

- Power Consumption: 12 Watt

- Performance: 215 MB/sec for 16K blocks

- Thoughts about next generation:
  - Switch to SATA (reduced power consumption)
  - Deploy multiple drives to achieve performance

Axxana's Black Box – Built to Last

And this is what The Phoenix System® looked like!

Before fire

After fire

For more details visit

http://www.youtube.com/user/WEDR08

Thank you!

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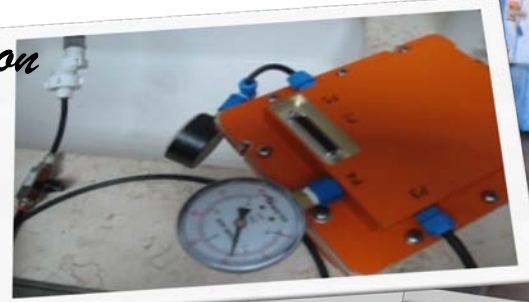www.axxana.com

Extensive Disaster Tests Performed

Heat Test (450f)

Fire Lab (1900f)

Hydro Pressure

Static Load

Cellular Transmission

Shock

Penetration test

Vibrations

Rod Drop Penetration Resistance Test

The Ideal Implementation