

# **Convenient, Reliable & Secure Backups**

**folkert@feedface.com**

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**As technology grows into all aspects of your life,  
the number of bits that represent emotional or  
economical value to you increases.**

**So you probably do not want to lose those bits.**

# Desired Properties

- **Convenient**  
Otherwise you will not backup your data.
- **Reliable**  
Otherwise your backup will fail when needed most.
- **Secure**  
Otherwise your data will fall into the wrong hands.

# Option

# Cloud Based Storage

- **Convenient**

If you have the upstream bandwidth for it.

- **Reliable**

Good luck getting your data back when you lost access to your email and keychain.

- **Secure**

Other people will see your data.



“Remember: if it's not on a drive that is in your physical possession, it's not really yours.”

-Jamie Zawinski

# Option

# External Disks

- **Convenient**  
Attaching external drives is a hassle. You will forget to do it.
- **Reliable**  
If you use multiple disks.
- **Secure**  
If you use full disk encryption.



# Option

# Network Attached Storage

- **Convenient**  
NAS are pretty good at that.
- **Reliable**  
If you cycle through multiple disks.
- **Secure**  
If you use encryption, and do not keep your key on the NAS.



# Approach

- **Convenient**  
Run your backups automatically over-the-air.
- **Reliable**  
Keep your backup disks in multiple locations.
- **Secure**  
Encrypt your backup disks.

# Components



## Access Point

- 802.11n  
Fast Wireless



## Backup Server

- Full Disk Encryption



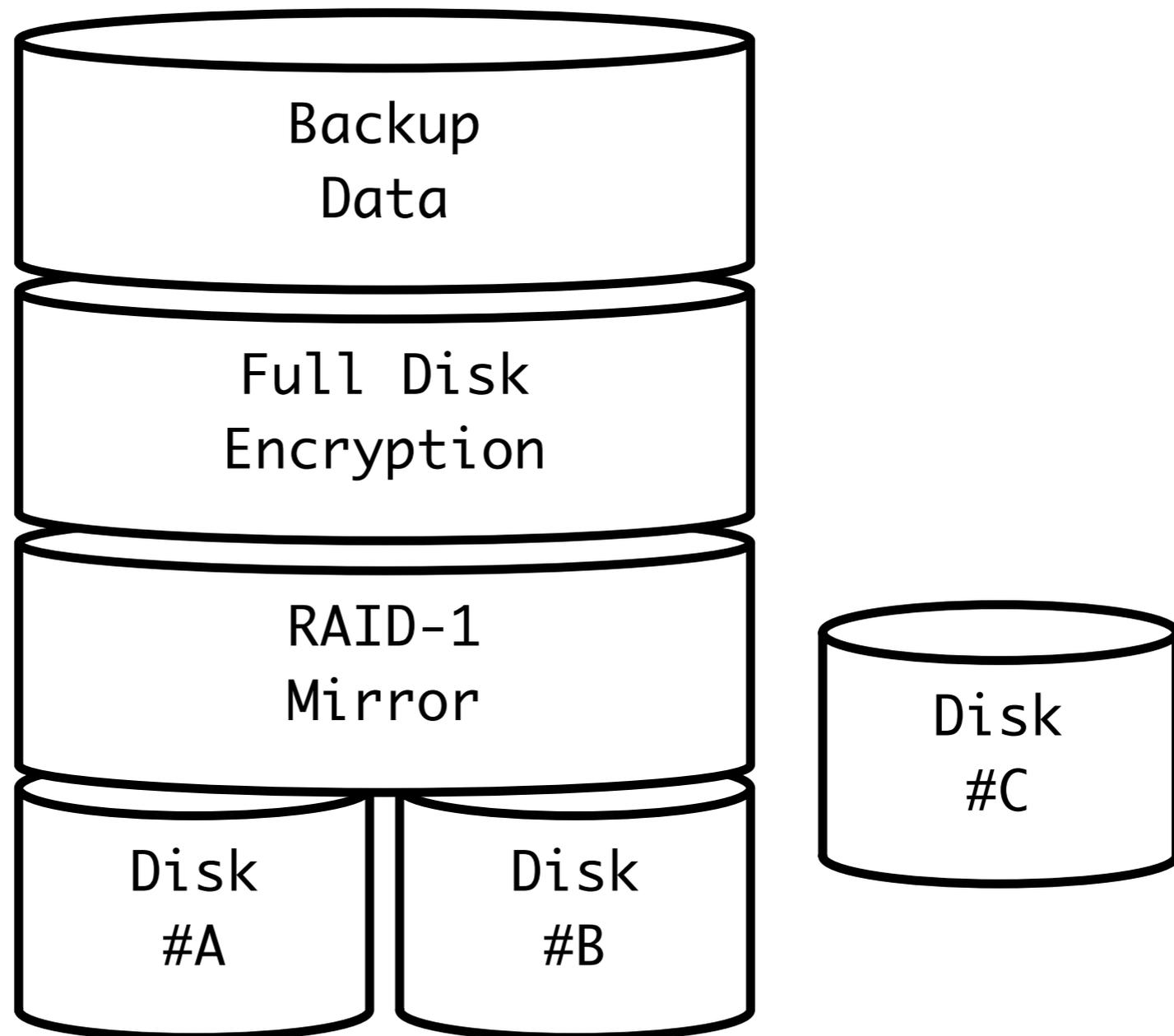
## External RAID

- Hardware RAID-1
- Spare Drive

# Storage Layers

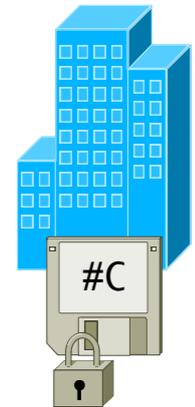
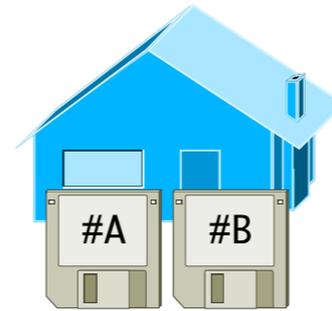
**Security** →  
Allows you to  
store disks offsite

**Reliability** →  
Allows you to  
hot-swap disks

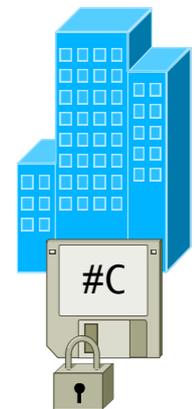
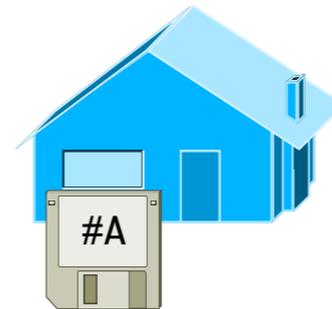


# Weekly Routine

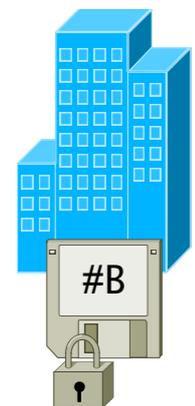
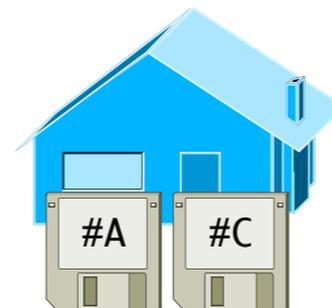
**1.** Disk#A and Disk#B are in RAID at home, Disk#C is offline at remote location.



**2.** Remove Disk#B from RAID, take to remote location, bring Disk#C back home.



**3.** Insert Disk#C into RAID, restore data from Disk#A automatically.



# Scenario

# Laptop Theft

Lost your laptop in a bar? Or did you still have it in the taxi?



Buy new laptop, go home, restore from yesterdays backup.

# Scenario

# Disaster Strikes

Your flat burned down,  
and now there's water  
everywhere!



Buy new laptop, get  
offline disk from remote  
location, restore from  
last weeks backup.

# Scenario

# **Adversary Action**

Strangers break into your flat and take all your computers by force.



Wait until you're alone, call your lawyer, retrieve offline disk from remote location.



<http://www.feedface.com/tech/backup.html>