Disaster Data Recovery

What is data recovery ?

- Data Recovery is the process of restoring data that has been lost, accidentally deleted, corrupted or made in accessible.
- Or in other term data recovery typically refers to the restoration of data to a desktop, laptop, server or external storage system from a backup.

Disaster

- Disaster mean some unexpected condition/situation like natural disaster earth quake, flood etc. similarly disaster occur in cloud computing.
- Cloud Computing disaster e.g. you are using Flipkart site for shopping and suddenly you are disconnected and this disconnection depends on many reasons
  - Internet connectivity
  - Hardware failure
  - Software failure
  - Server failure or many more reasons ……

Formal Definition :

- Cloud disaster recovery (cloud DR) is a combination of strategies and services intended to back up data, applications and other resources to public cloud or dedicated service providers. When disaster occurs, the affected data, applications and other resources can be restored to the local data center -- or a cloud provider -- and resume normal operation for the enterprise.

Real life example & causes of disaster

FEBRUARY 26, 2010

Tendulkar breaks Cricinfo records

Sambit Bal

Tweet 12 | Like 304 | 282 COMMENTS

Sachin Tendulkar's record-breaking didn't stop on the field on February 24. He shattered many on Cricinfo. We recorded 45 million page views that day, and our highest number of unique users in India and the United States. The **match report** for the Gwalior ODI became Cricinfo's single most read piece of content.

It has always been so. If evidence was ever needed to confirm Tendulkar's status as the world's most-adored cricketer, it can be found in our logs. Month after month, year after year, he remains the most-searched cricketer on Cricinfo; by a huge margin, his profile page is the most visited player page on the site; and in any given month, headlines (often more than one) featuring his name are among the top 10 on the site.

We know this first-hand. He made our website buzz. Consistently, and by a distance, his player page, has been the most visited of all. This year alone, it registered more than 2 million views. The next best was Ashton Agar, with 500,000. Tendulkar was, almost always, among the most-searched players on the site every month, and stories about him featured unfailingly among the most-read pieces year in, year out. When he was about to become the first double-centurion in one-day cricket in 2010, fans mounted such an onslaught on our servers that they took the site down.

Real life example & causes of disaster

- A DDos (distributed –Denial of service) : in which a group of malicious hackers executes this DDos attack for breaking connection between database and application .
- SamSam ransomeware attack 2018 on the city of Atlanta: Attacker hack all government's system including police records, courts records etc. all system shutdown for 5 days , attackers demanded $52,000.
- Data Centre Failure in 2013 : Cantey Technology handle more than 200 host server causing a fire torched destroyed its whole infrastructure with no chance of any data recovery.
- In 2016 a nasty virus infect the UK hospital network such a way that it halted all operation at three hospital for five days.in total ,more than 3000 patients procedures an appointments were cancelled because of this attack.
- Google doc server also get halted for few times in UK .

So, what causes disasters?

Hardware Failures – 34%

Power Loss/Interruption – 35%

Software Install or Upgrade – 20%

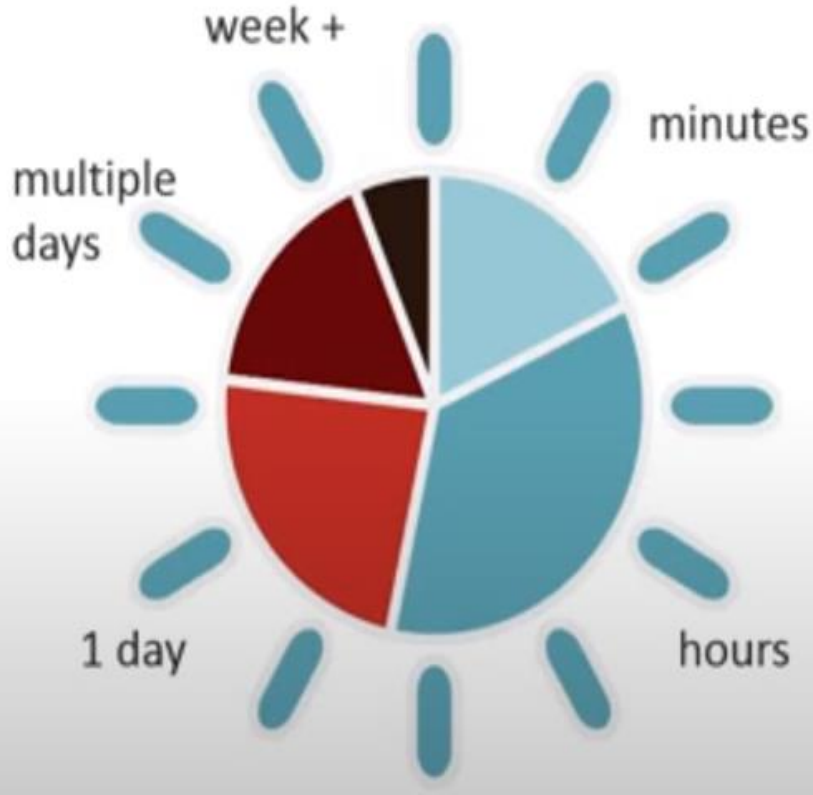
Accidental Deletion of Data – 6%

Companies will recover…….but not so fast.

77% of businesses were at least fairly confident of full recovery

BUT

Perception of recovery



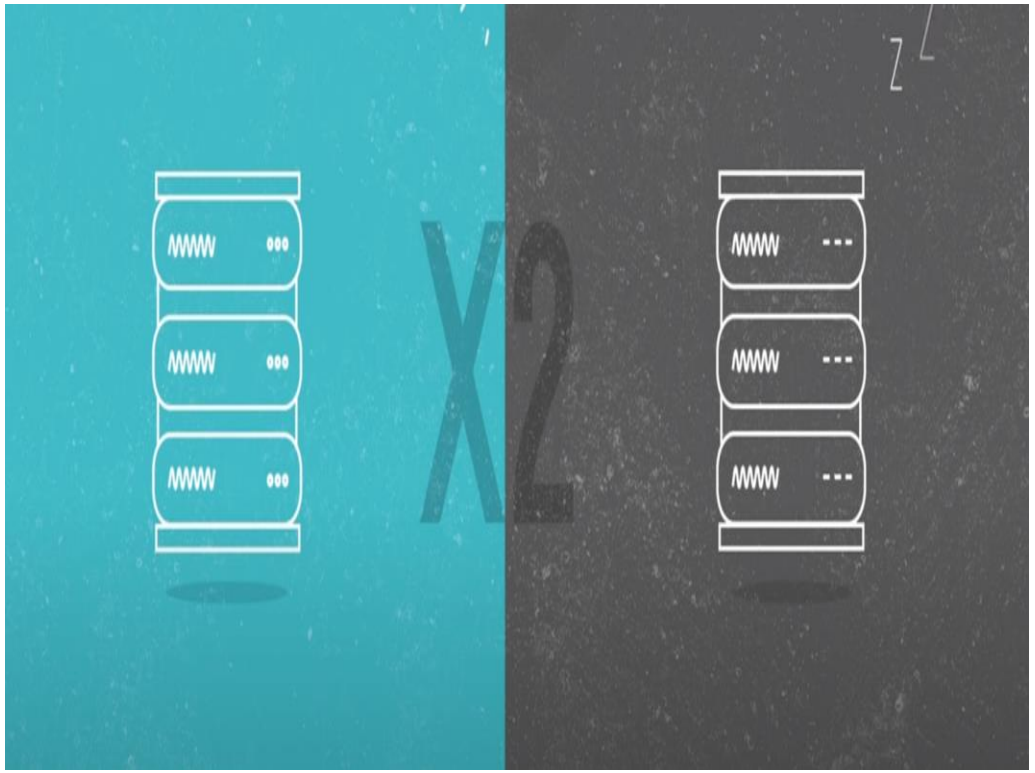
How would more than one day of downtime affect your business?

Which applications require disaster recovery?

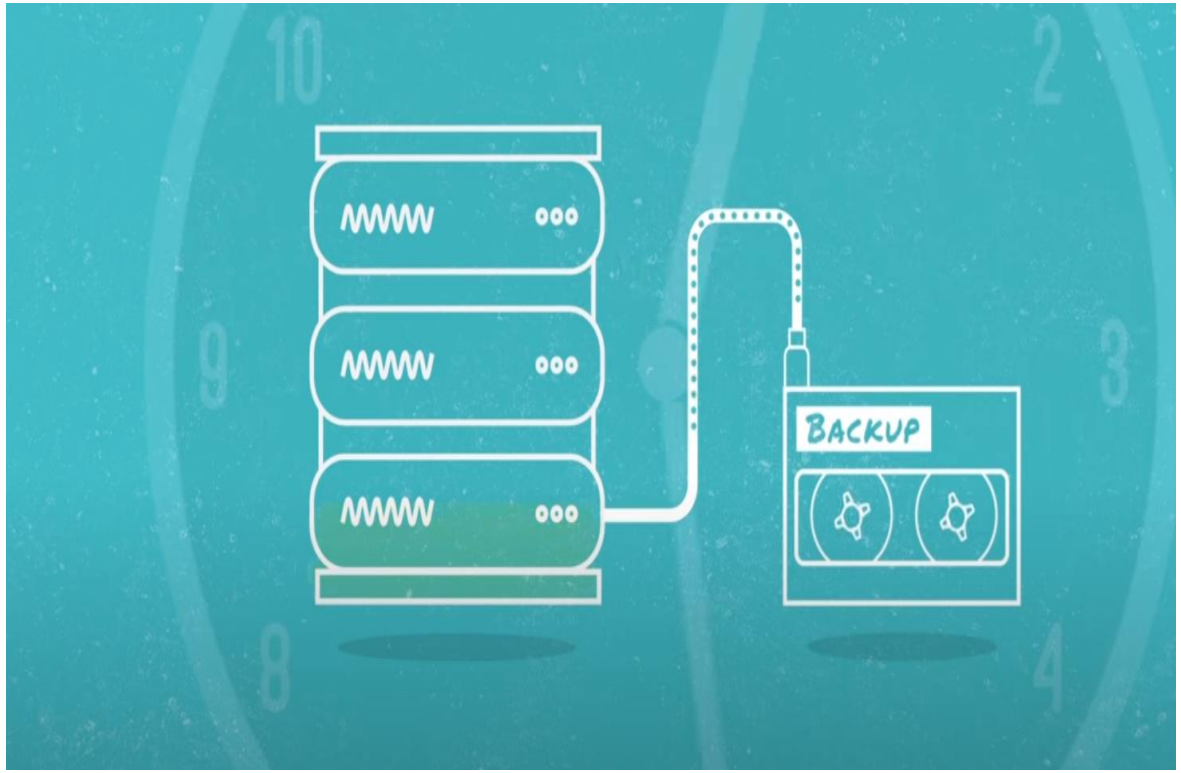
- If the application is down, will you lose:
  - Revenue?
  - Customers?
  - Productivity?
- If the application is down will you violate any:
  - Laws?
  - Compliance regulations?
  - SLAs?

If you answered yes to any of the above, you need disaster recovery!

Two way to recover from Disaster Recovery



Create a same server as a copy to keep all things as it



To keep backup of every instance on Reliable backup media

Disaster Recovery

- **Hot Site:**
  - Here what ever we work online a copy of data is created on the spot(real time)
  - As system failed due to disaster then immediately that copied data replaced for system recovery.
  - System get recovery in few minutes.
- **Warm Site**
  - Data Copy created but not in real time (just stand by approach).
  - Just store data these duplicate data aren’t doing any processing.
  - It take time for system recovery (not immediately in few minute)
  - System get all data and specific configuration settings
- **Cold Site**
  - Data copy created but it need additional task such as downloading the store data or loading.
  - Simplest approach
  - It take more time to recovery (longest time to recovery)

Data Backup

- Computer Files copied over to another storage devices
- As your file change or update new backup set are copied
- At the event of disaster you can recover file from your most recent backup set .
- This point –in- time file recovery concept is critical to backup.

“Mirroring” is not Backup

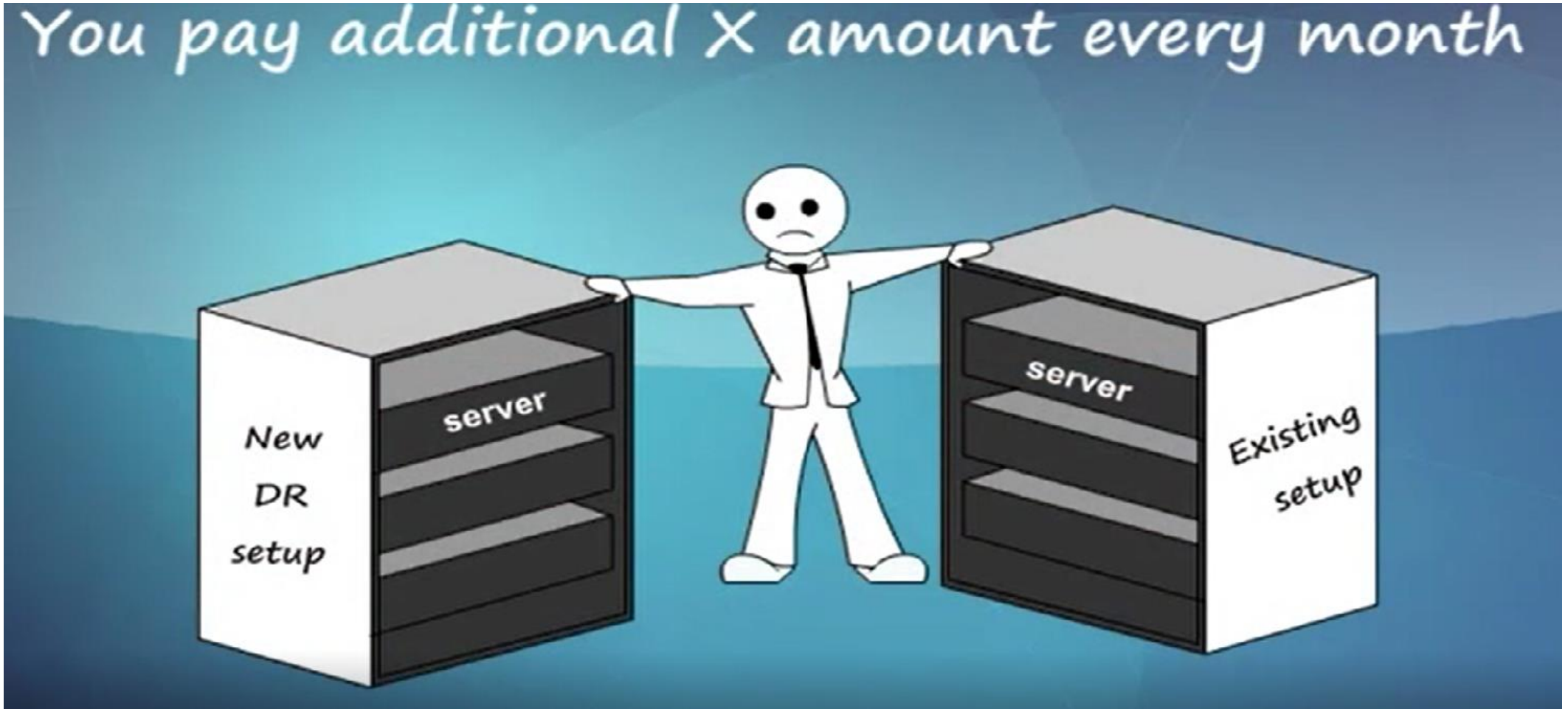
- If not maintaining the multiple copies of backup as they change over the time then it simply not backup.
- As recovery process come with current situation recovery .

Disaster：Recover physically destroy server

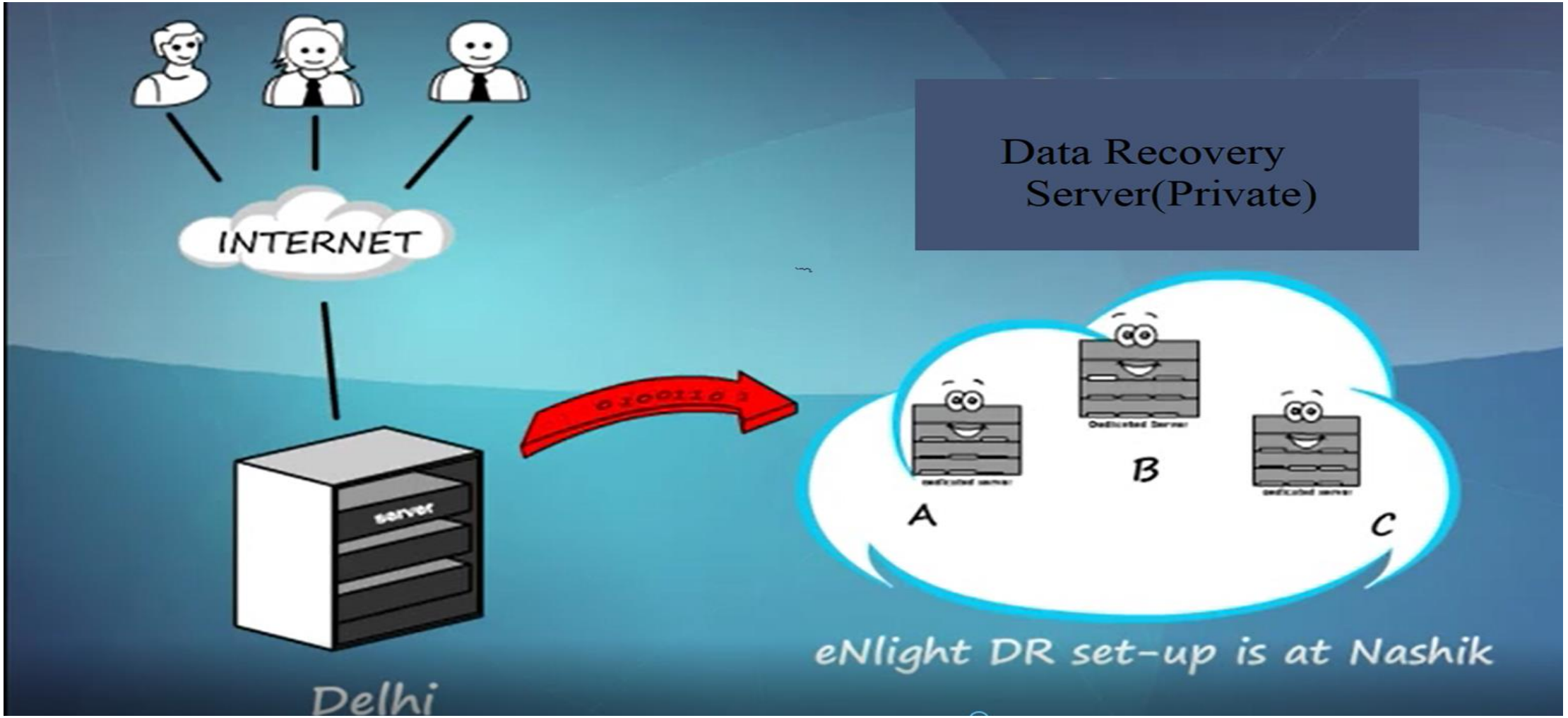
- Physical hardware replacement (Purchase)
- Re-installing OS and applications.
- Reload Backup Data on new server.
- Finally configure server according to specification of the original machine.
- Recovery such system take a week.
- Because of that disaster recovery system was invented, Which

Disaster Recovery System

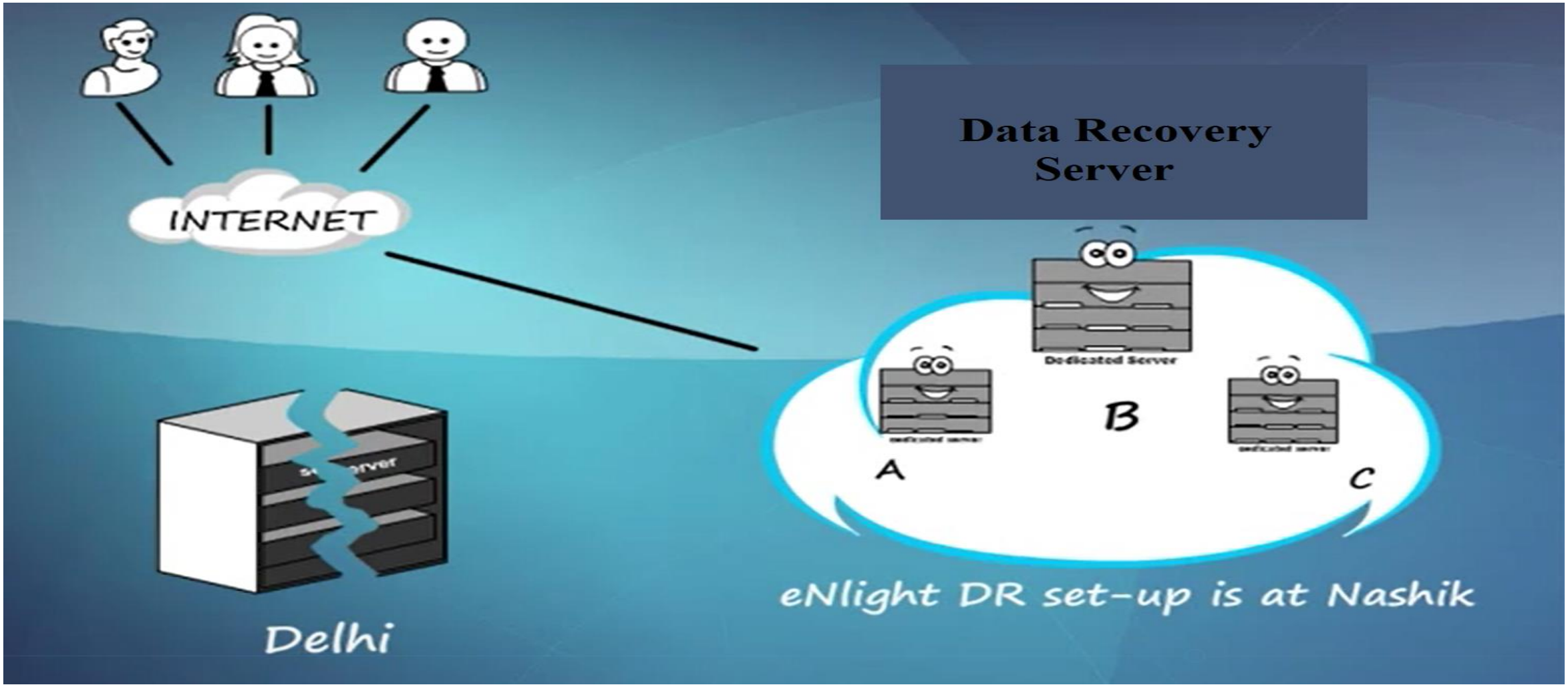
- If we developed our own recovery system then its cost same as original server



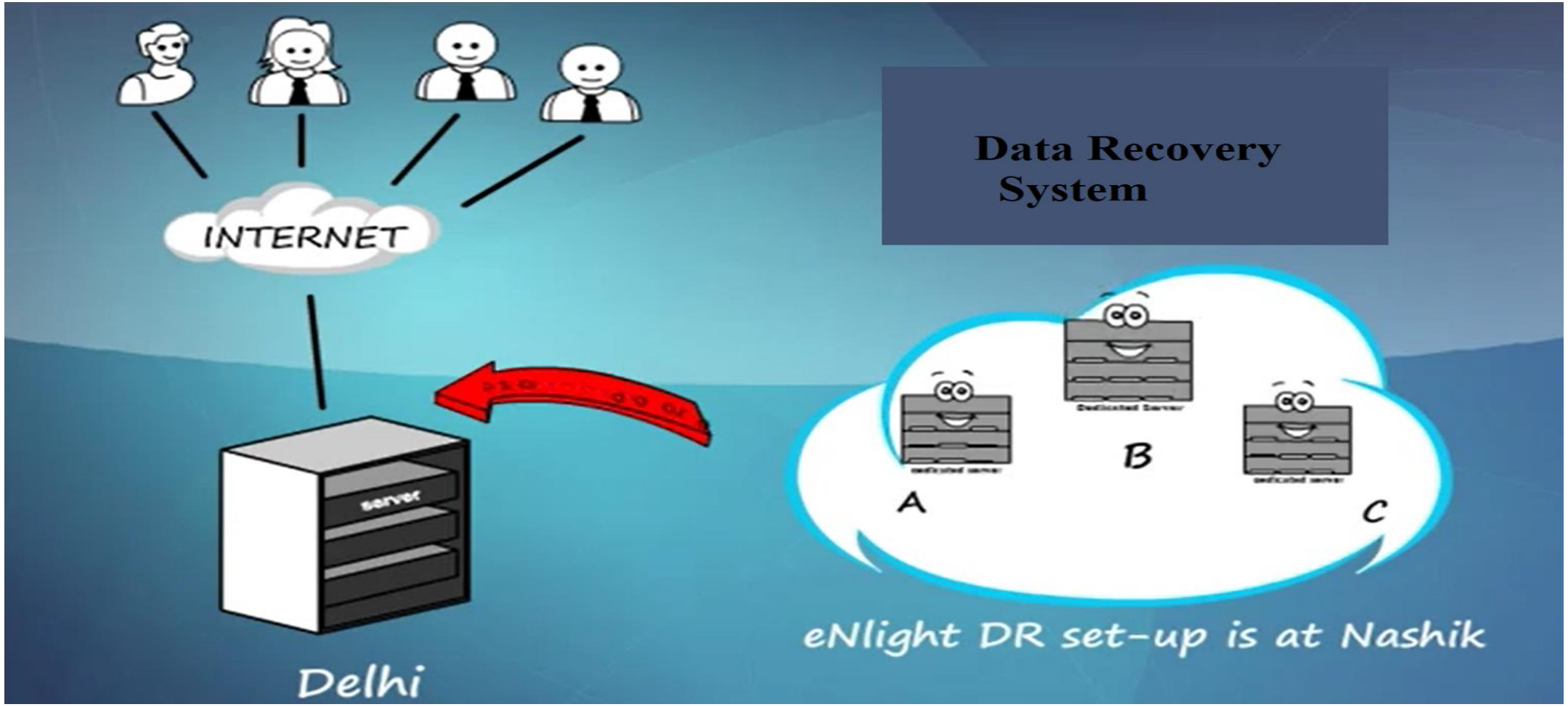
Disaster Recovery



Disaster Recovery



Disaster Recovery



Cloud DR Vs Traditional DR

Traditional

- Physical hardware replacement (Purchase)
- Re-installing OS and applications.
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Benefits of cloud DR

- **Pay-as-you-go options:**which enables organizations to pay a recurring monthly charge only for the resources and services that are used.
- **Flexibility and scalability**
- **Easy testing and fast recovery**
- **High-reliability**

Cloud disaster recovery providers, vendors

- Bluelock
- Expedient
- IBM DRaaS
- Iland
- Recovery Point Systems
- Sungard AS
- TierPoint