NEARC Northeast Arc Users Group

# Disaster Recovery and Business Continuity for GIS

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BOWNE AE&T GROUP
Where Experience Empowers Vision

# Presentation Overview

- Who is Bowne?
- Overview of disaster recovery and business continuity
- Three case studies:
  - NYC government post 9/11/2011
  - NYC Economic Development Corporation today
  - City of Newburgh today

# Who We Are

- Bowne Management Systems, Incorporated
- Part of the Bowne AE&T Group
- Founded in 1986
- Specialize in GIS and IT services and consulting
- Our focus is local government
- Headquartered in the NYC area
- We have approximately 30 F/T staff

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# A Disaster is:

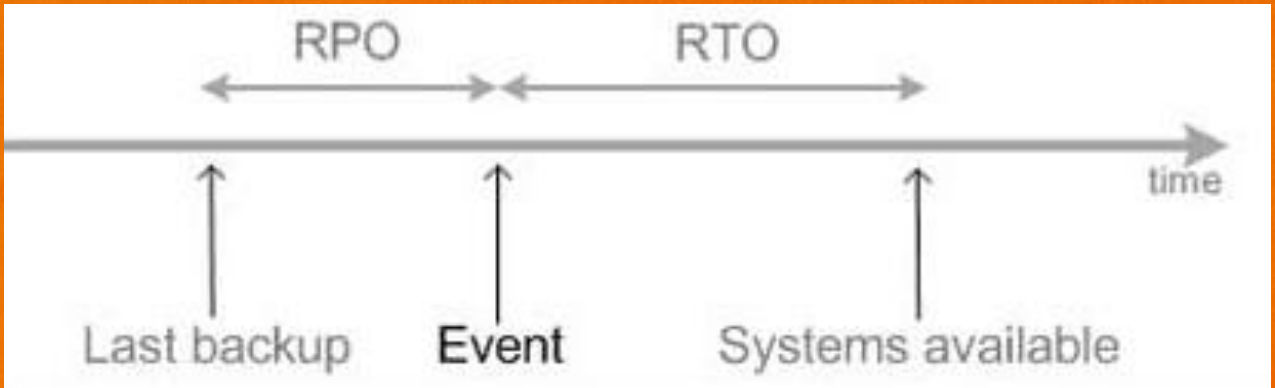
Any unplanned event that threatens an organization's ability to function effectively

# Disaster Management Phases

- Planning / preparedness
- Response
- Recovery
- Mitigation

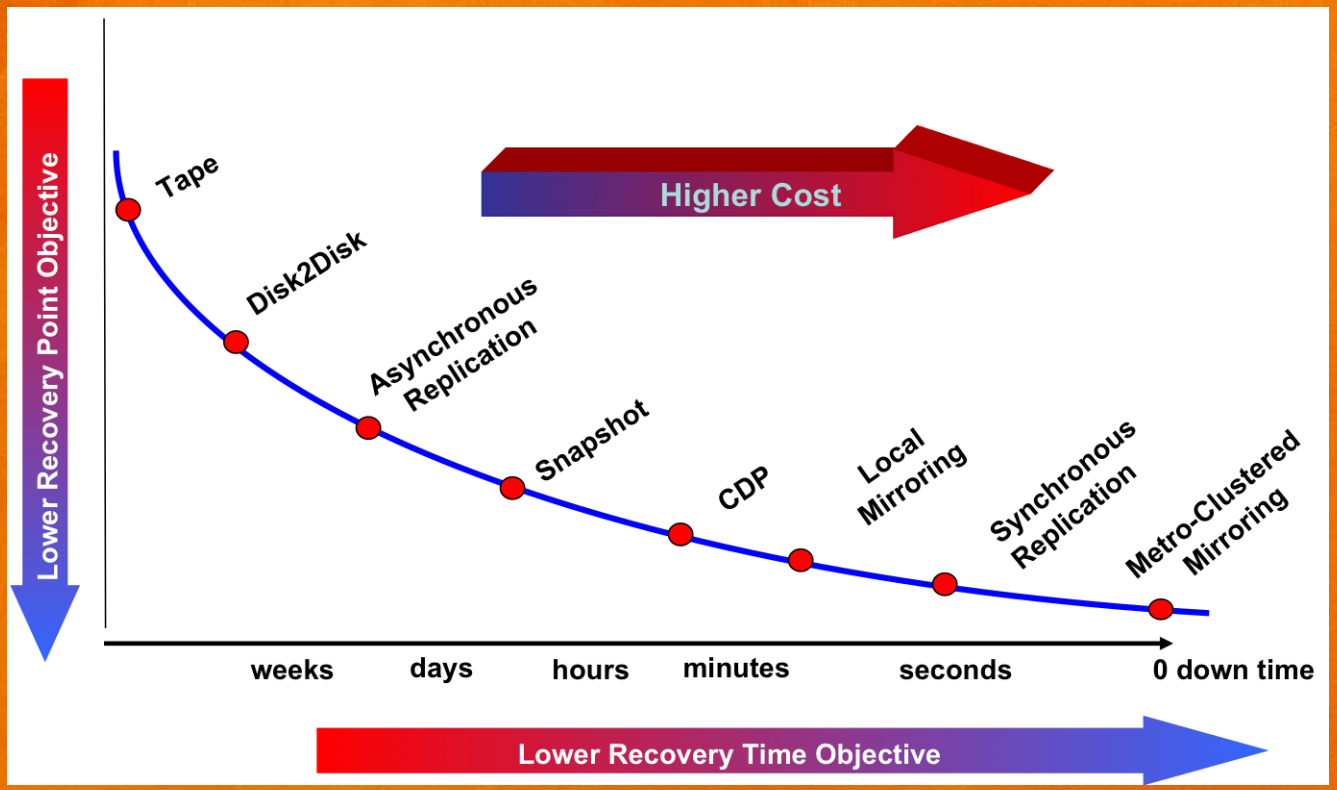
# RPO and RTO

- The Recovery Time Objective (RTO) is the goal for how quickly an application and its data need to be back online
- The Recovery Point Objective (RPO) defines to what point in time the data must be restored to be considered successful



# How Much Can You Tolerate?

- RPO and RTO represent the balance between maximum acceptable data loss and the cost of achieving that objective



# *Audience Participation Time*

- How much confidence do you have in your disaster management plan?
  - No plan
  - Never tested
  - Failed
  - Passed

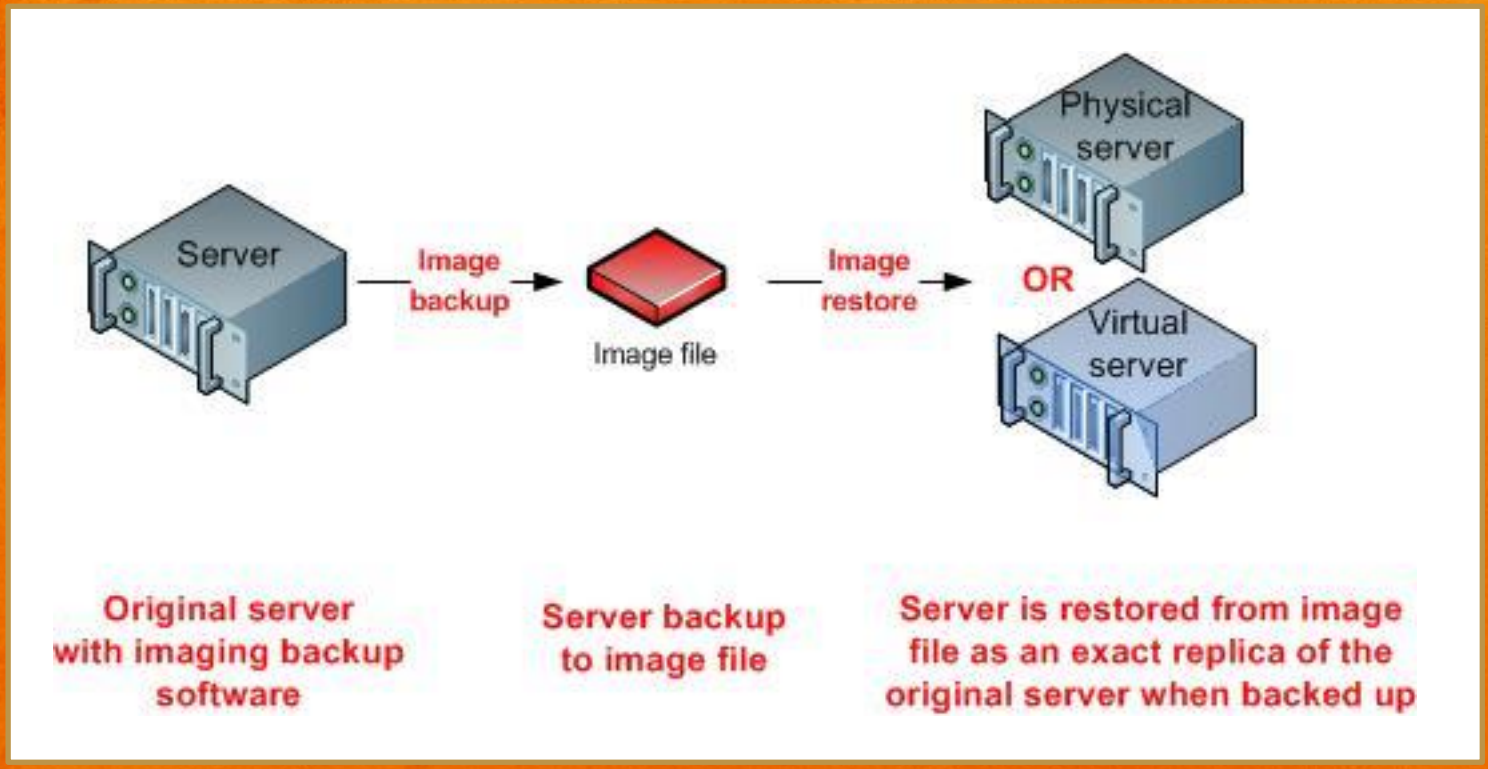
# Results of a Survey


***In a VERITAS survey of over 3,000 IT professionals, 72 percent had no disaster plan, never tested their plan, or had a plan that failed.***

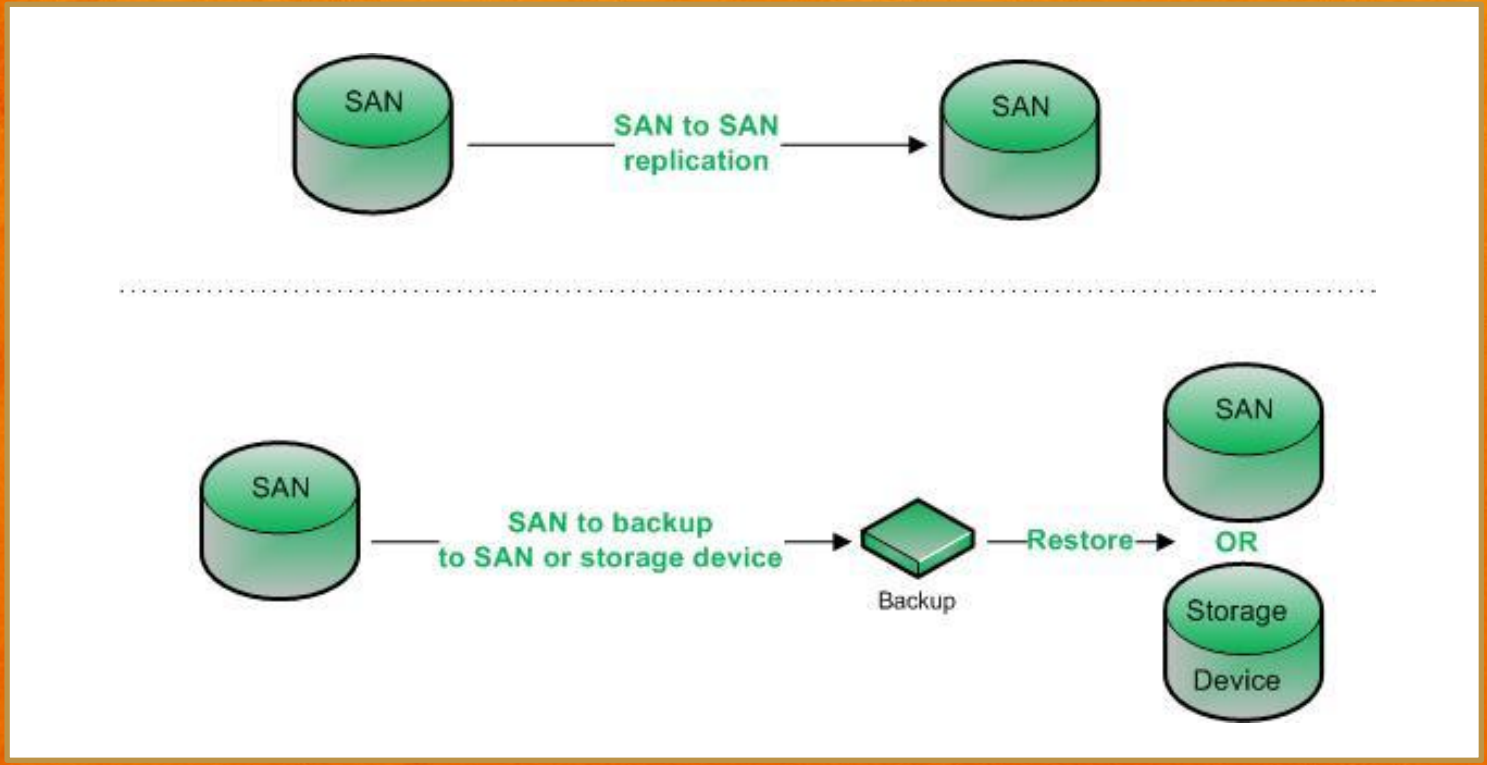
# Many Solutions

- RAID, other mirroring
- Backup using tape, disk, other media
- Replication
- Server and storage virtualization
- Disk and server imaging

# Server Imaging



# Storage Management



# Three Case Studies

- NYC government post 9/11
- NYC Economic Development Corporation today
- City of Newburgh today

# NYC 9/11

- Suddeness caught NYC GIS off guard
- Primary offices were 1 ½ blocks north of WTC7
- We left at 9:15 AM and did not return for months

# NYC Post 9/11

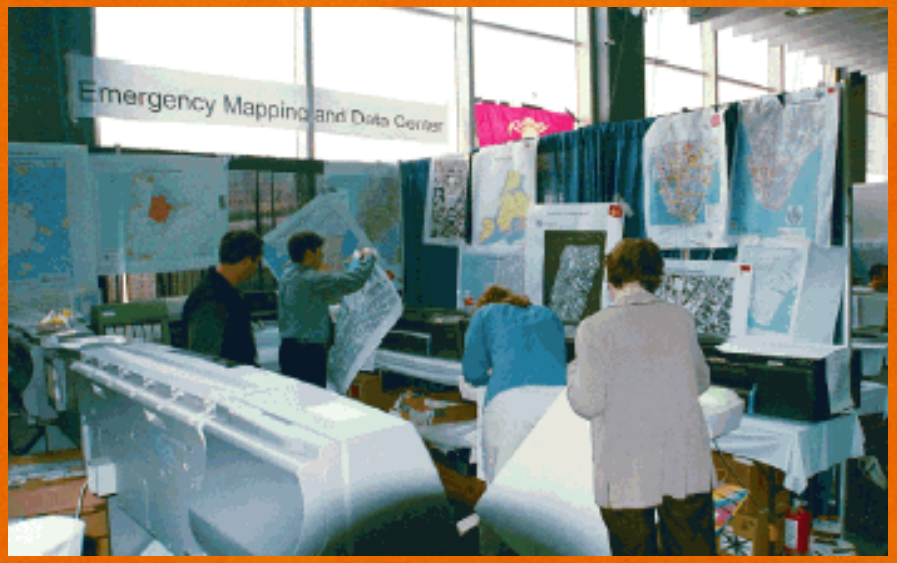
- Immediate focus: finding staff and ensuring their safety
- That evening we went to the NYPD's EOC and started doing GIS
- The "Emergency Mapping Center" grew quickly in size and capabilities, but didn't have an enterprise geodatabase

# NYC Post 9/11

- Within a few days we moved to OEM's EOC
- We were renamed the "Emergency Mapping and Data Center"
- Several of our key resources were "grabbed" by others

# Post 9/11, NYC

- The EMDC operated 24/7 through Nov and closed late Jan 2002
- Over 5,000 job requestes wre processed
- Over 100 professinoals and volunteers gave their time



# Lessons Learned

- Get busy, supporting first responders and stay close to them – adjust your products and services quickly
- Have an enterprise geodatabase, many copies of it and remote access
- Have a web hosting platform and ftp capabilities
- Document simple things – e.g. contact info, dataset names and locations, key URLs, usernames and passwords

# NYCEDC GIS Business Continuity Project

- Over 2 TBs of GIS data hosted
- About 10 GIS web applications
- Variety of geographic web services, web map services and SharePoint Web Parts
- Widespread integration by non-GIS apps/systems
- Seven GIS servers
- 3 full-time GIS staff, 1 part-timer, 2 interns

# NYCEDC's GIS RTO and RPO

| GIS Resource | Recovery Time Objective (RTO) | Recovery Point Objective (RPO) |
|---|---|---|
| PropertyInfo (application) | One business day | One week |
| PoliticalInfo (a) | Two business days | One month |
| AMmap (a) | Two business days | One week |
| CAPmap (a) | Two business days | One week |
| DEVmap (a) | Two business days | One week |
| IncentiveMap (a) | Two business days | One week |
| WFMMS (a) | Two business days | One business day |
| geoEDC (a) | Two business days | One business day |
| ArcGIS Desktop users (software) | Two business days | One business day |
| PropertyCentral services (web services) | One business day | One business day |
| Enterprise geocoder (web services) | One business day | One business day |
| Geosupport (web services) | One business day | N/A |
| ProjectCentral map services (web map services) | One business day | Two business days |
| Standard map services (web map services) | Two business days | Two business days |
| WFMMS map services (web map services) | Two business days | Two business days |

# NYCEDC GIS Business Continuity Project

- Goal: specify, procure, install, configure and test remote GIS hosting of data, services and applications
- Esri and Microsoft-based architecture
- Existing GIS infrastructure all downtown Manhattan
- New remote site offered

# Brooklyn Army Terminal

- 6.6 miles by road from corporate headquarters
- Offered both server room capacity and GIS staff work areas

# NYCEDC GIS Business Continuity Project

- Implementing with NYCEDC's GIS and MIS
- Next step: test and adjust, re-test (iteratively)
- Plan and infrastructure will need to be kept up-to-date over time

# NYCEDC GIS Business Continuity Project

- Configuration:
  - Servers are imaged and left off by default
  - GIS data is replicated using SAN-to-SAN replication and SQL Server replication
- Synchronization:
  - Server images are refreshed weekly
  - Replication uses real-time transactional updates

# City of Newburgh

- Over 100 GBs of GIS data and Esri desktop software
- Some GIS web applications
- GIS data is hosted at 22 Grand Street
- GIS data is backed up at 83 Broadway

# City of Newburgh

- Cons:
  - The two sites are across the street from each other
  - No remote site is ready now
  - No coverage for GIS web sites and Esri licensing
- Pros:
  - GIS data is being backed up
  - The City recently authored a data-centric Disaster Management Plan

# Any Questions?

*Thank you!*