The Essentials of SharePoint Disaster Recovery Planning

@spmcdonough on Twitter
(for heckling purposes)

Sean P. McDonough
Chief Technology Officer
PAIT Group

MVP
Microsoft®
Most Valuable Professional

me

aka

"How I got SharePoint chocolate in my DR peanut butter"

me

My background with disaster recovery (DR)

- started before I ever touched SharePoint
- began in the financial services & insurance industry

My background with SharePoint

- began in 2004 with SharePoint Portal Server 2003
- I switch between IT Pro and Developer hats

DR and SharePoint

- co-authored two SharePoint DR books
- regularly speak, blog, and "work" on DR topics

this talk: why?

Most DR presentations I've seen (and delivered myself) focus on "how to" technical concerns ...

- How to implement backups
- How to establish high-availability

Not enough has been done to discuss the choices and processes that go into DR planning

- aka, the "non-gearhead" stuff

The prerequisites

This is a 100-level talk, so I don't assume much:

- you don't know much about DR (other than "it's a good idea for my organization")
- you are interested in the end-to-end DR process and more than just strictly technical concerns.

Don't take notes unless you really want to

- http://SharePointInterface.com

In the time we have ...

The Agenda

- Discuss the "big picture"
- Analyze the DR process
- Explore how SharePoint and DR come together

"The Big Picture"

"The Big Picture"

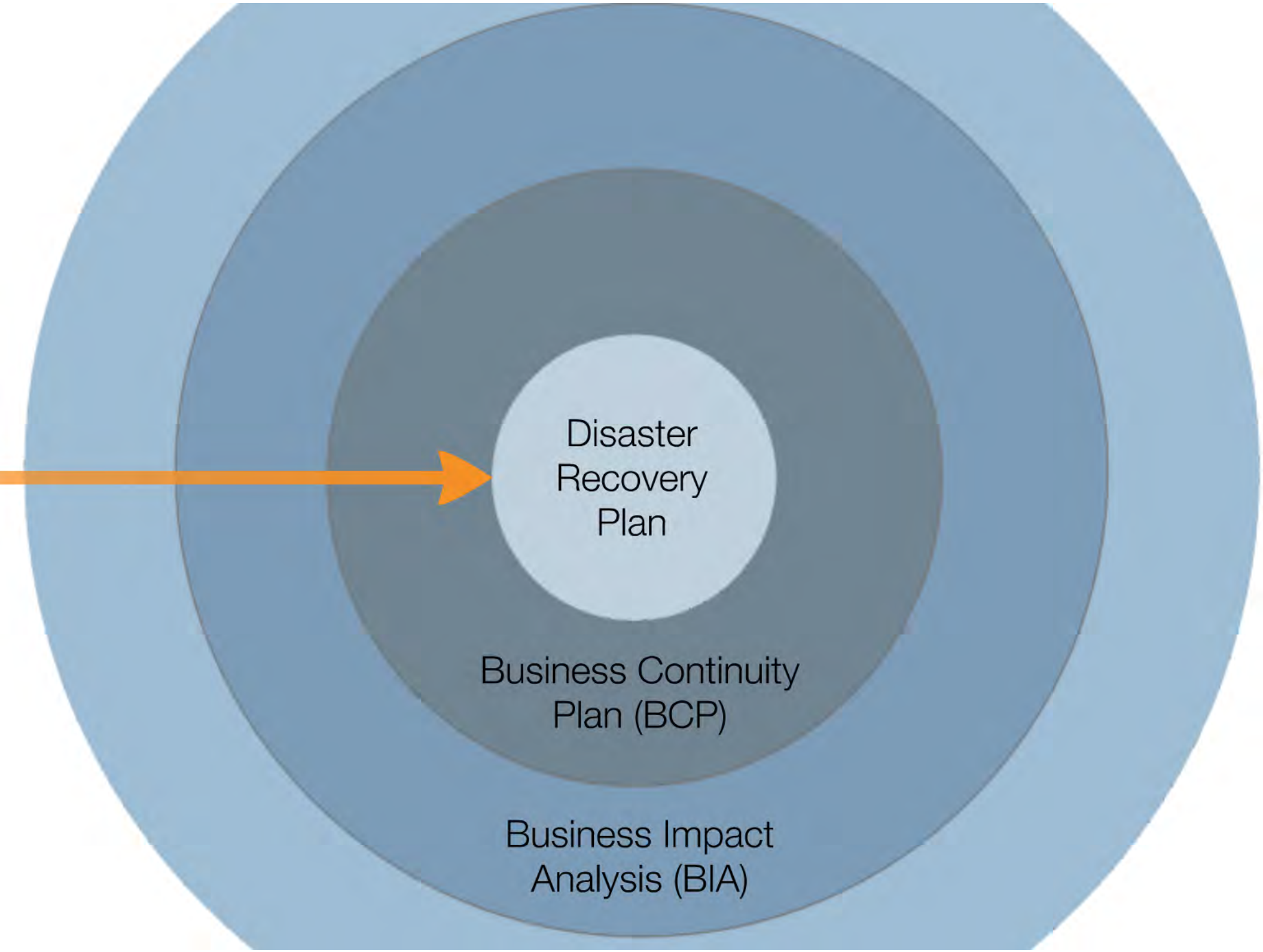
- many layers

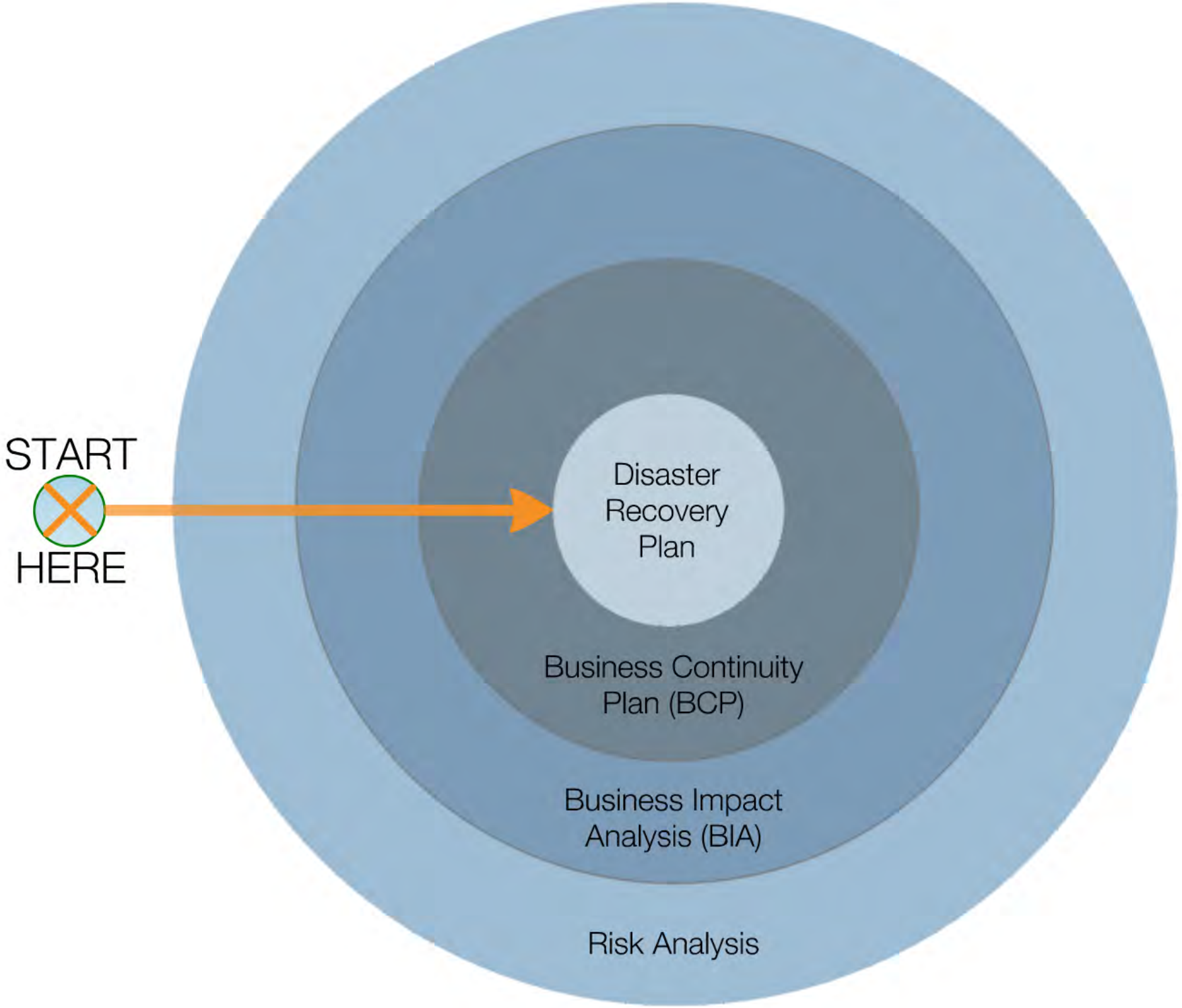
"The Big Picture"

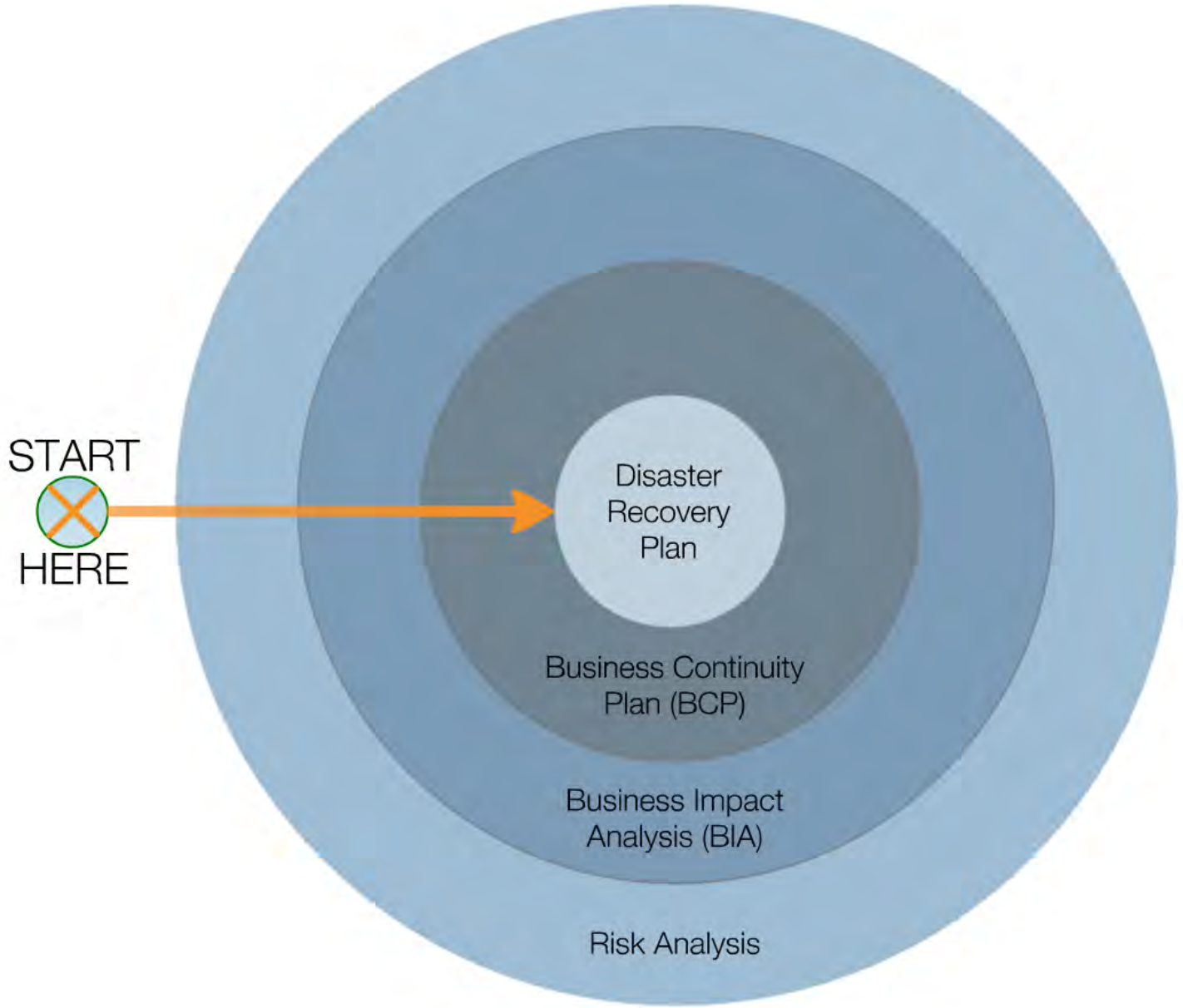
- many layers
- you're probably going to cry as you peel them back


Disaster
Recovery
Plan


Disaster
Recovery
Plan
Business Continuity
Plan (BCP)


Disaster
Recovery
Plan
Business Continuity
Plan (BCP)
Business Impact
Analysis (BIA)


START
HERE
Disaster Recovery Plan
Business Continuity Plan (BCP)
Business Impact Analysis (BIA)
Risk Analysis



There's a lot that should happen before you ever get to an actual DR plan

Risk Analysis

Identifies and quantifies the probable threats to normal business operations and activity

What could go wrong?

- Primary data center is flooded
- Your network is cyberattacked
- The bulk of employees fall ill
- Power is lost to your location (who kicked the cord?)

Quantify it

- What is the realistic probability of the event?
- If the event occurs, how severe would the impact be?
- Probability x Severity = Overall Risk

BIA

A business impact analysis maps risks to business processes and systems that would be affected if something were to go wrong

What comes out of the BIA?

- A document or matrix that maps individual risks to one or more business processes and systems that would be affected
- An estimate of what each interrupted process or downed system might cost the organization, oftentimes in dollars per hour ($/hr)
- Prioritization of processes and systems to protect
- Acceptable loss and downtime windows

BCP

A business continuity plan addresses the findings of a BIA and defines processes to mitigate and/or minimize interruptions to normal business operations

What does a BCP cover?

- Manual procedures and work-arounds to keep business moving in the absence of supporting systems
- Key information and logistical plans to address unavailable facilities, equipment, and personnel
- Communications plans
- Disaster recovery plans

DR Plan

(Disaster) recovery plans document requirements and steps for restoring systems to agreed-upon levels of functionality

What can be found in a plan?

- An overview of what the plan addresses and what it doesn't address (equally important!)
- Recovery prerequisites (hardware, software, facilities, personnel, etc)
- References to dependent information systems/items
- Procedures for recovery
- Measurable success criteria for recovery

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Disaster Recovery Journal

http://www.drj.com/

Good online reference for disaster recovery articles, whitepapers, and other resources.

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Risk Analysis | BIA | BCP | DR Plan

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More abstract → More concrete

More strategic → More tactical

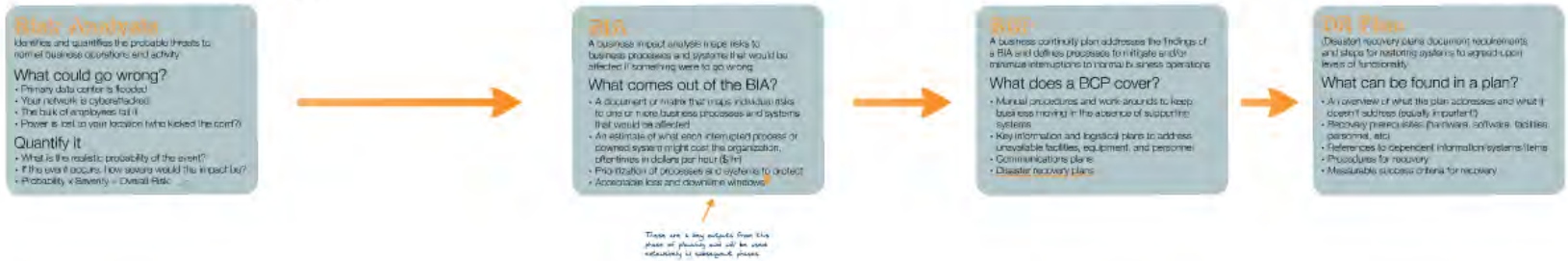
More "business-y" → More technical

Risk Analysis

BIA

BCP

DR Plan



More abstract → More concrete

More strategic → More tactical

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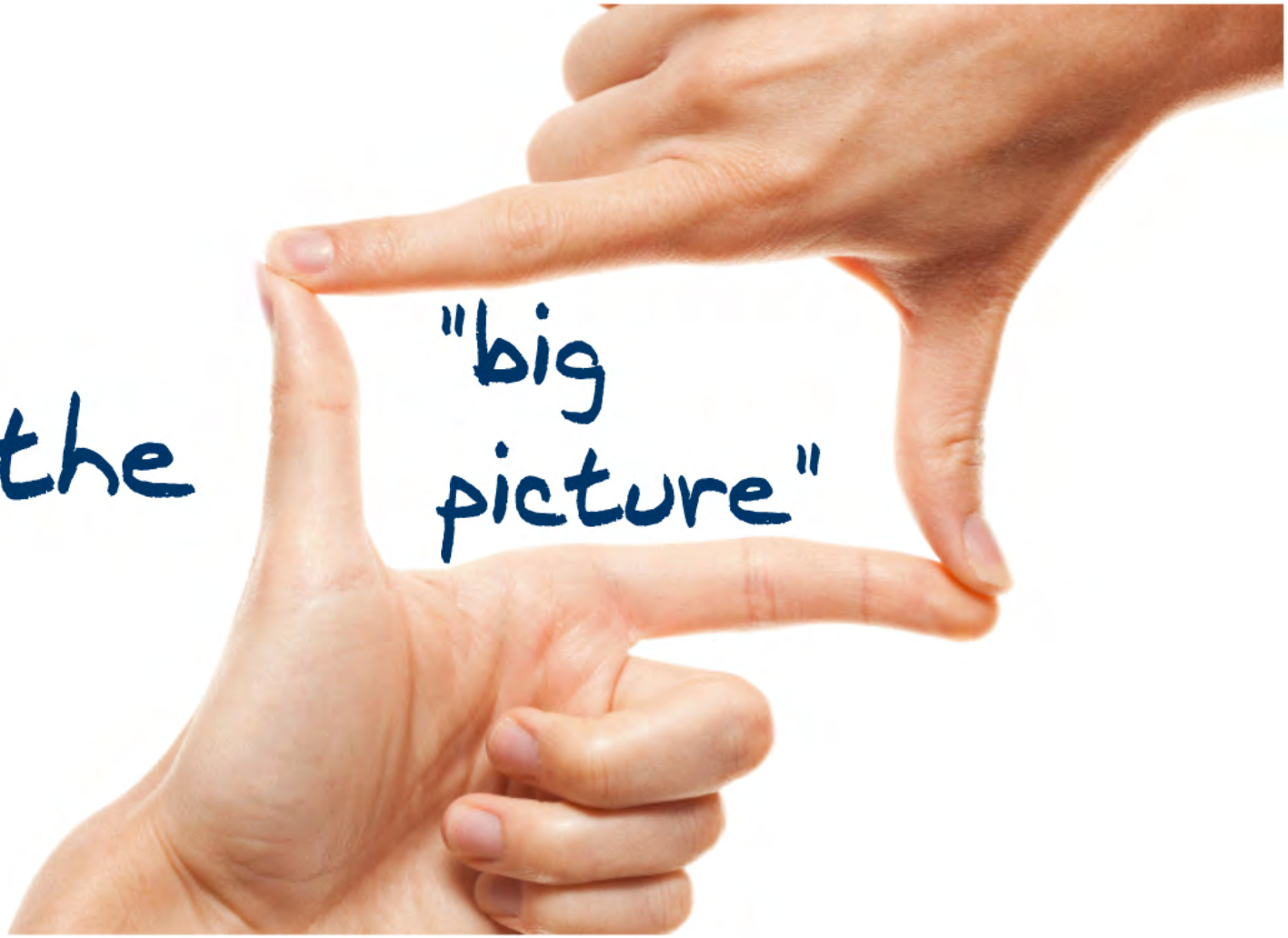
Disclaimer

There are many approaches to quantifying disaster risks and building contingency plans; I'm presenting only one. Form isn't nearly as important as simply ensuring you have a strategy!

that was the



The focus going forward is on ...

the DR  Process

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the DR  Process

... which is driven by RPO and RTO requirements

This is a good point to define those acronyms

RPO

RTO

This is a good point to define those acronyms

RPO

Recovery
Point
Objective

RTO

Recovery
Time
Objective

RPO

Recovery
Point
Objective

RTO

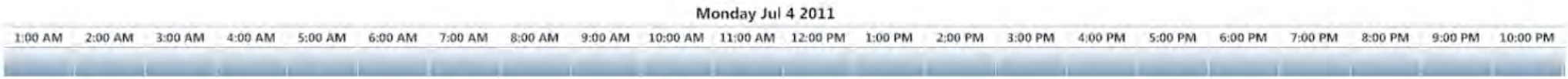
Recovery
Time
Objective

That's all great, but what do they really MEAN?

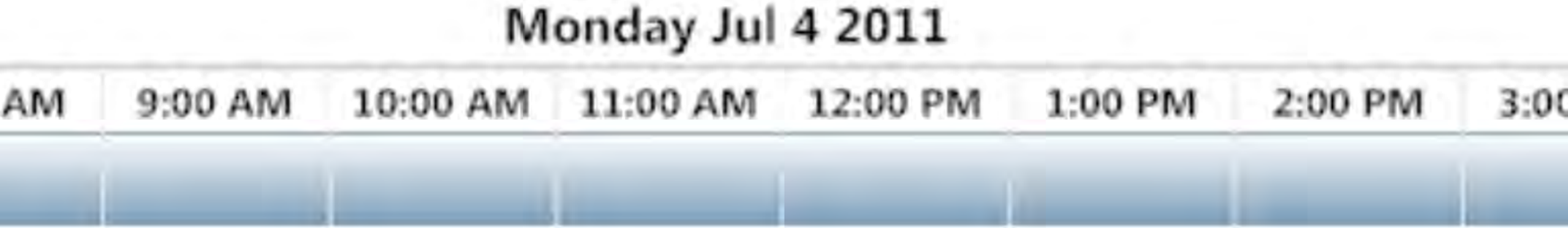
They define operational windows that guide and inform your selection of technologies and strategies for recovery

RPO

RPO (Recovery Point Objective)



- "looks backwards"
- defines maximum acceptable data loss



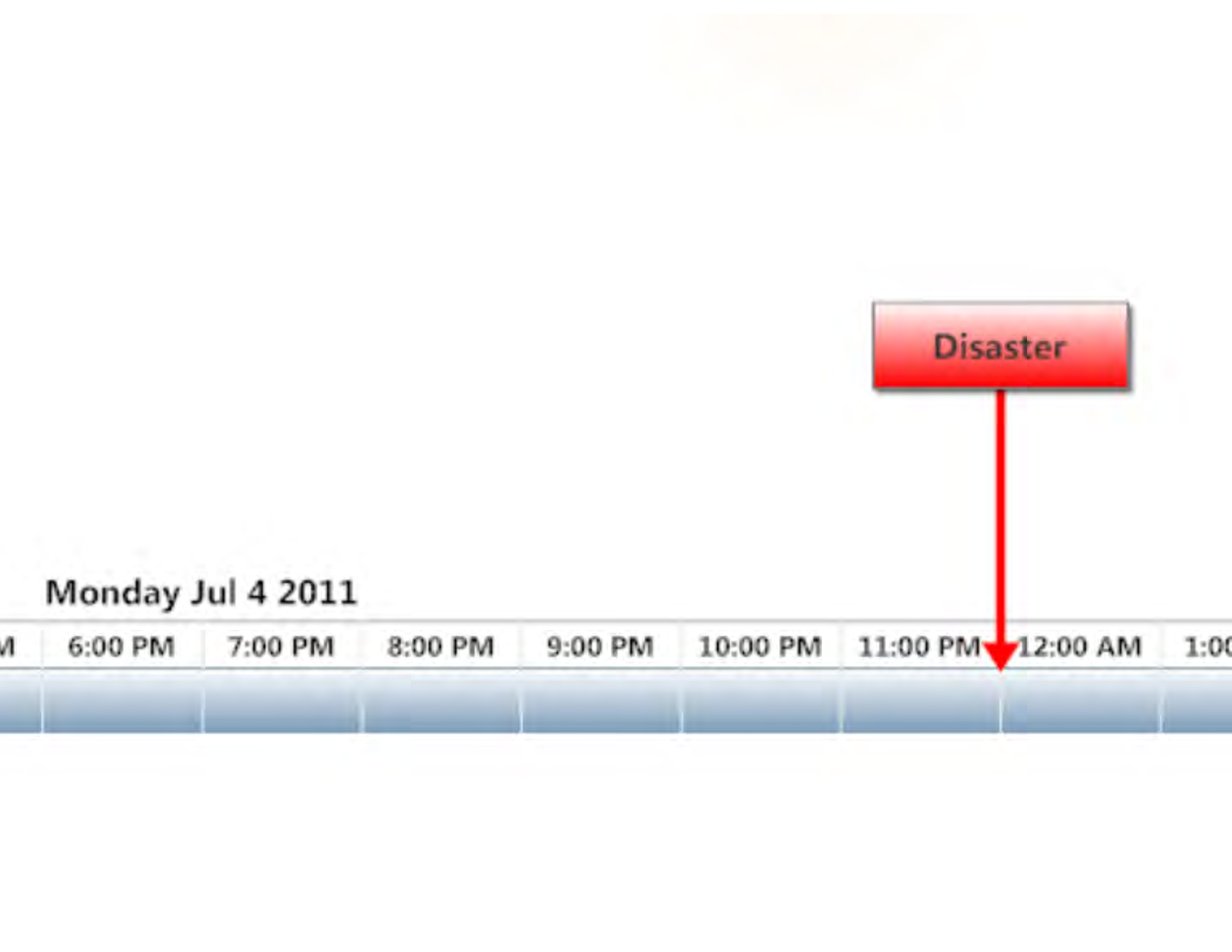
vards"

mum accepta

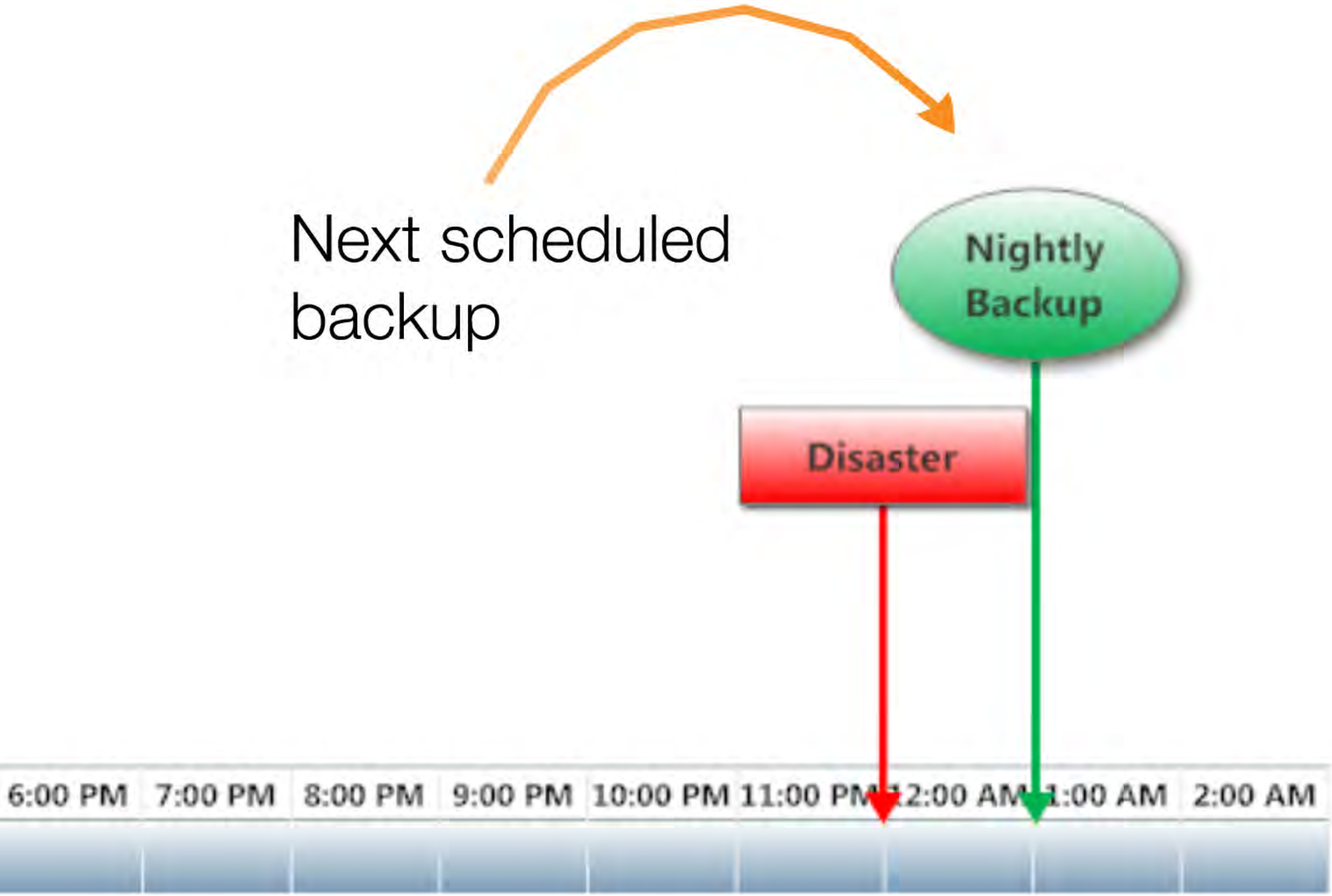
Your data center just took a mortar ...

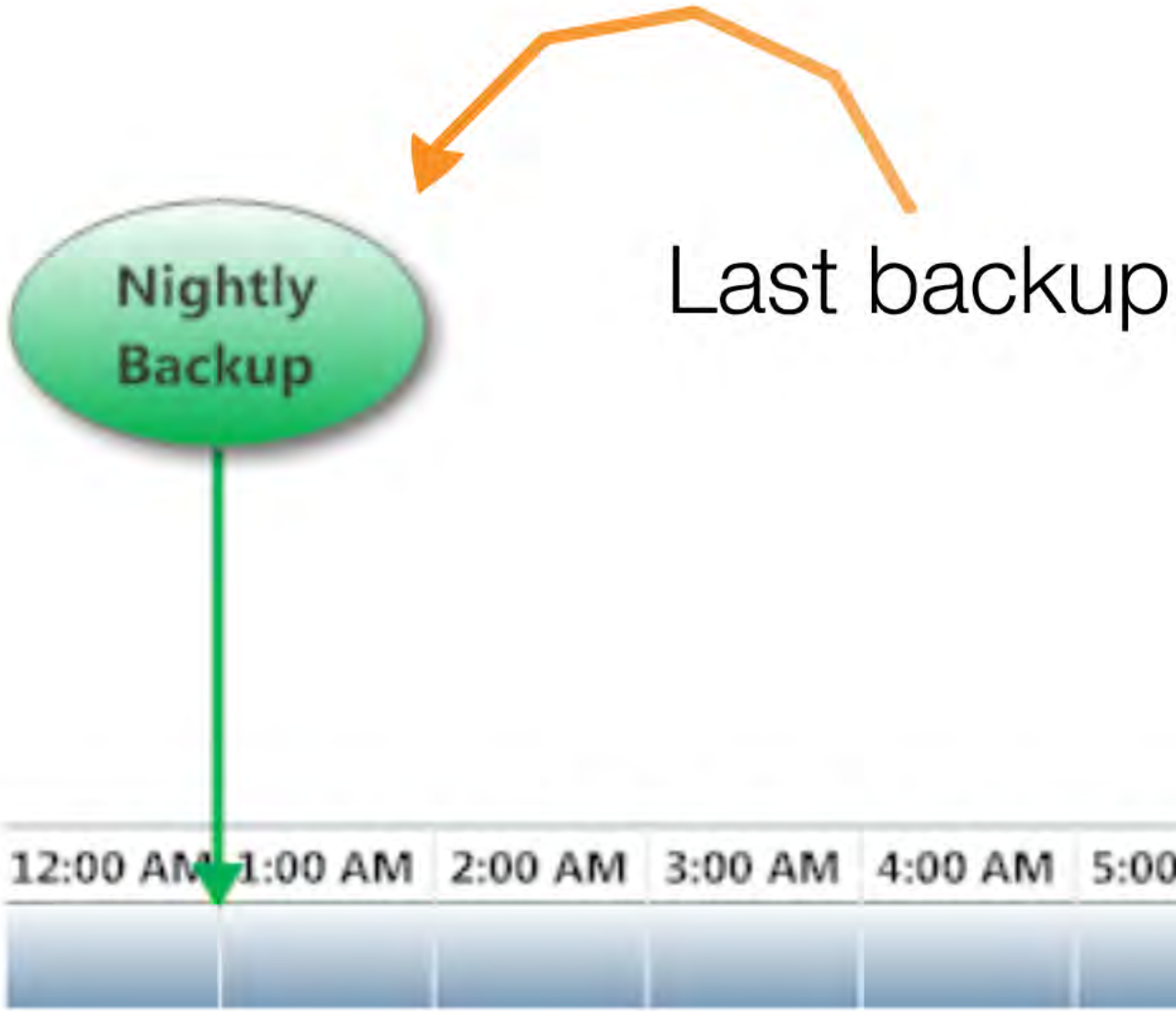
RPO

RPO (Recovery Point Objective)

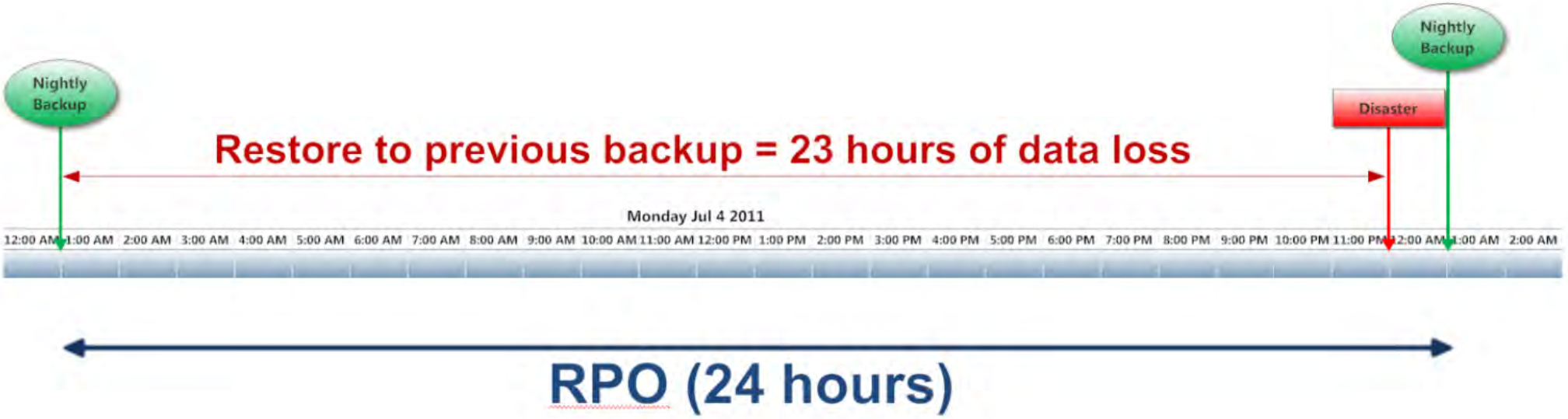

Disaster
Monday Jul 4 2011
M
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00

RPO (Recovery Point Objective)

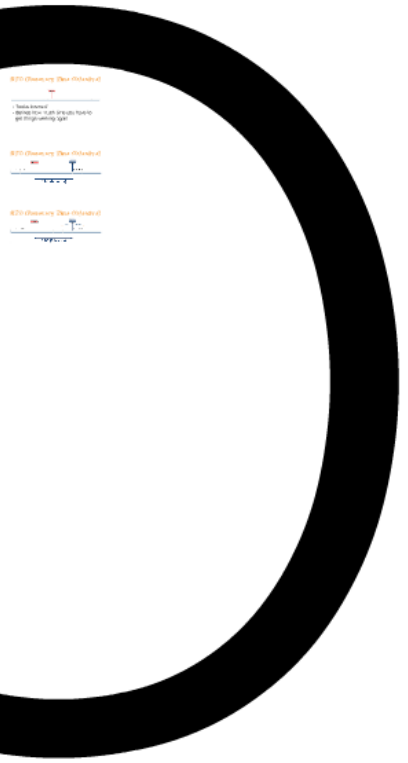

Next scheduled backup
Nightly Backup
Disaster
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM


Nightly Backup
Last backup
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00

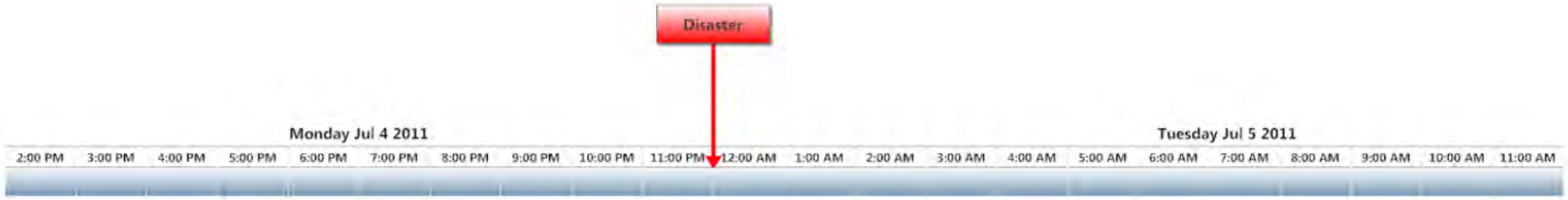
RPO (Recovery Point Objective)



RTO

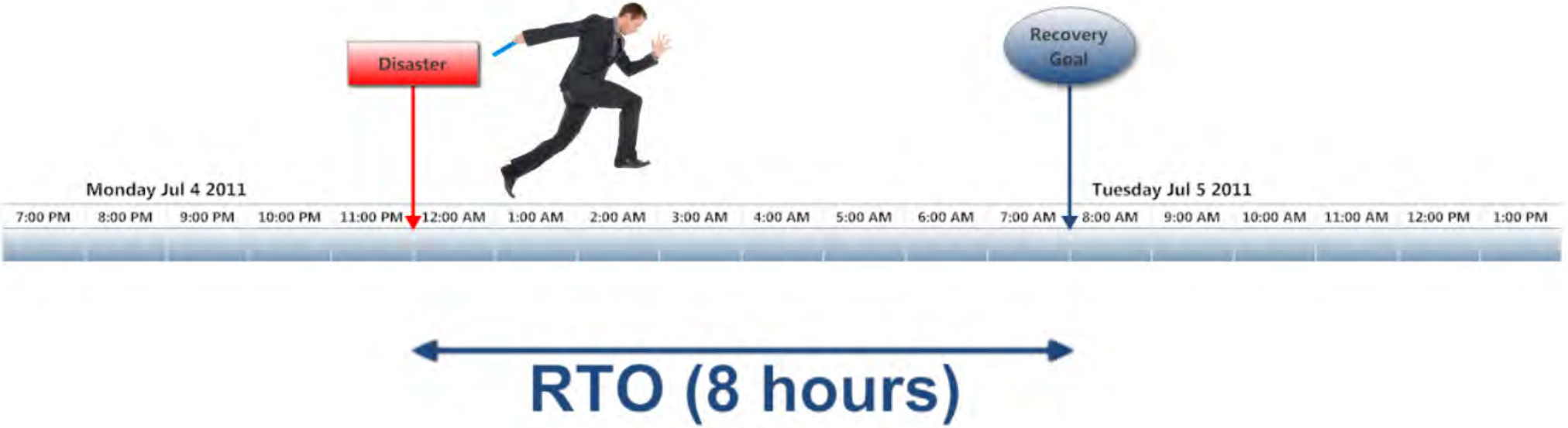


RTO (Recovery Time Objective)



- "looks forward"
- defines how much time you have to get things working again

RTO (Recovery Time Objective)



RTO (Recovery Time Objective)

RTO (8 hours)

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... which is driven by RPO and RTO requirements

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Please allow me a moment to preach ...

Risk analysis

BIA

BCP

RPO and RTO are determined up here

DR Plan

Implementation takes place down here

Risk analysis

BIA

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Business

DR Plan

Implementation takes place down here

Technical

If you're trying to build a DR Plan without business input, you're doing it wrong.

Risk analysis

BIA

BCP

Business

RPO and RTO are determined up here

Implementation takes place down here

DR Plan

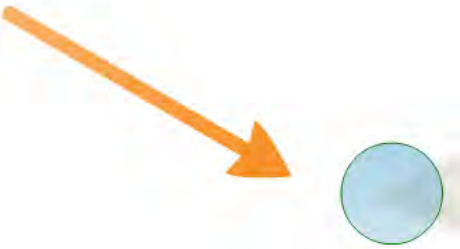
Technical

If you're trying to build a DR Plan without business input, you're doing it wrong.

Kind of like ...

Kind of like ...

DR Plan

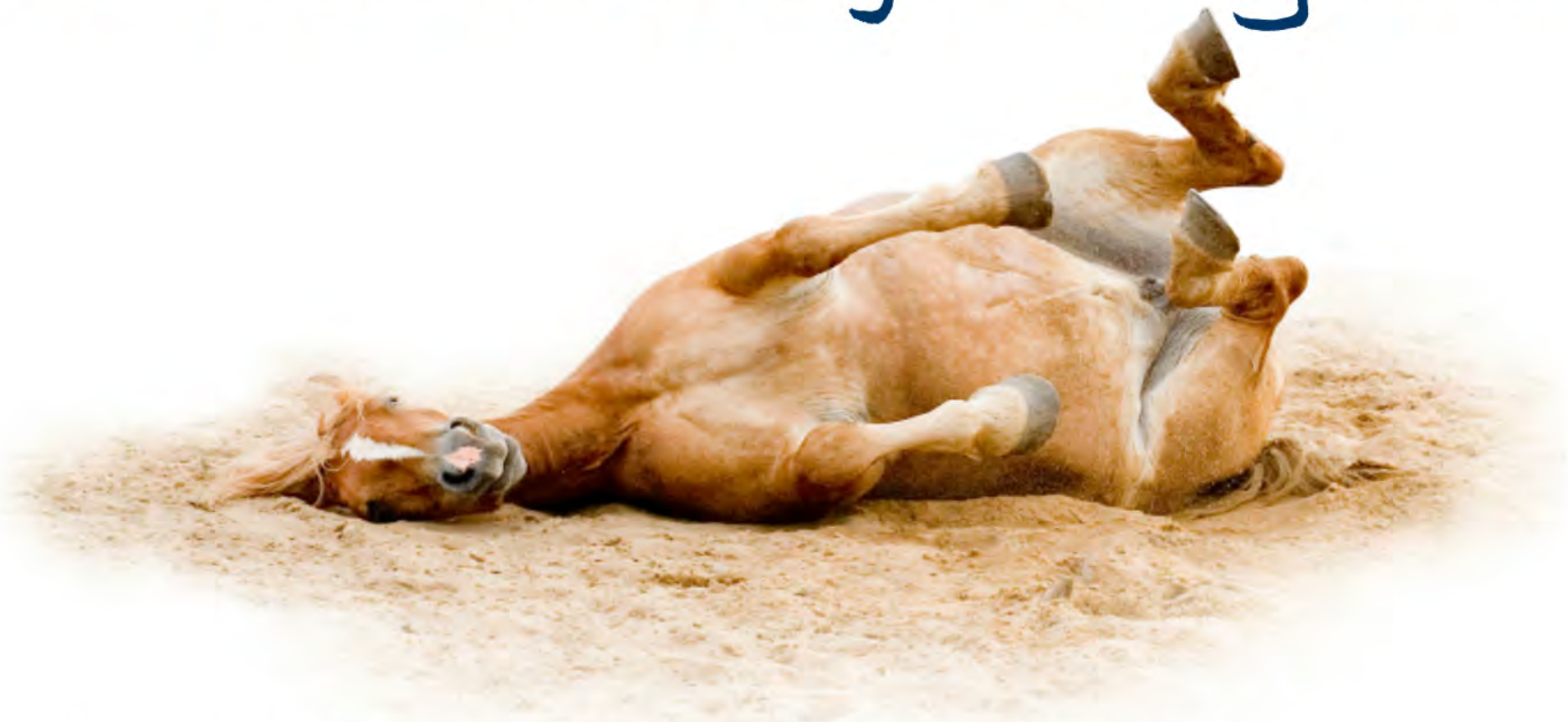


Kind of like ...

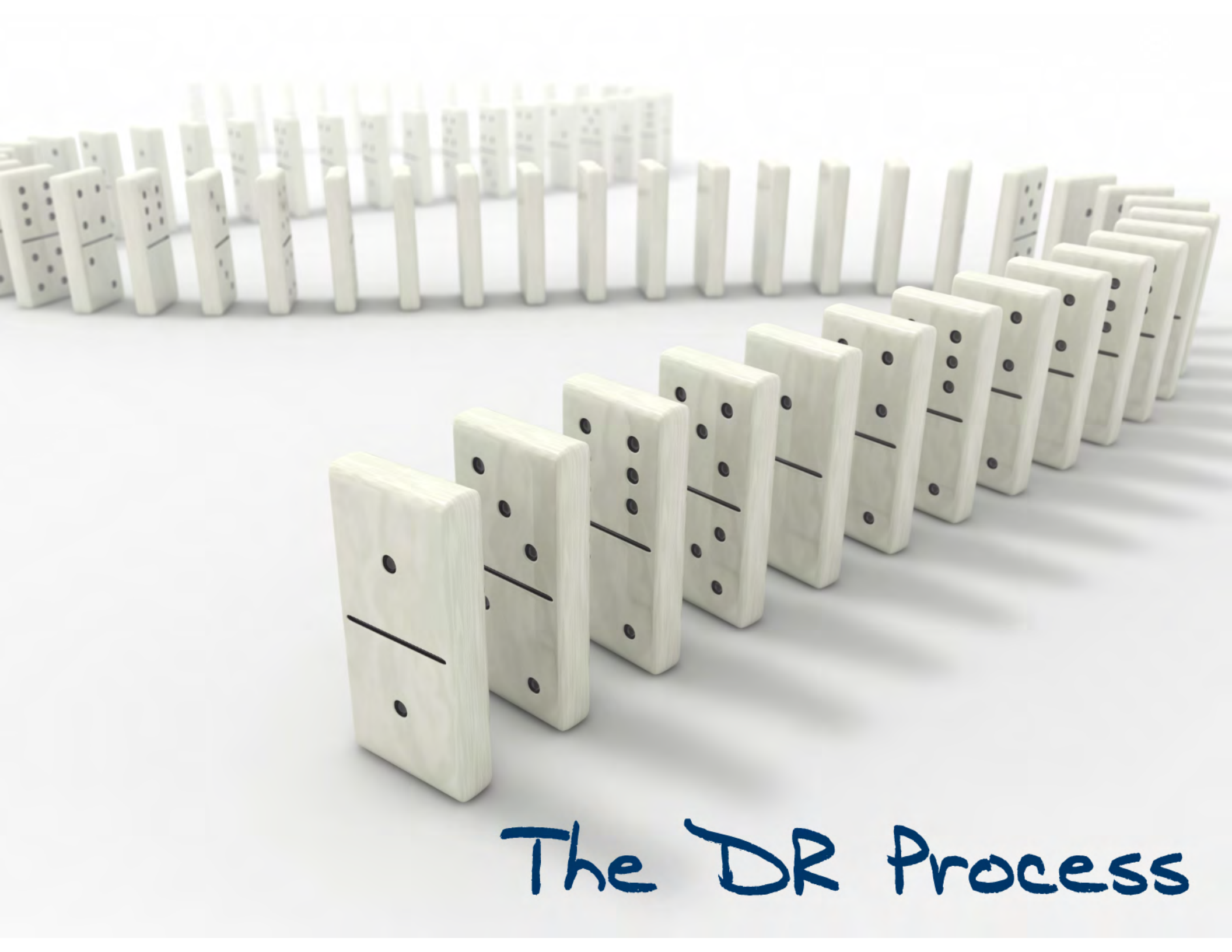
DR Plan

Business Continuity Strategy

If I haven't beat the horse to death enough for you ...



http://sharepointinterface.com/2009/07/08/rpo-and-rto-prerequisites-for-informed-sharepoint-disaster-recovery-planning/


The DR Process

The DR Process

Assessment

Planning

Maintenance

Implementation


Assessment
Discovery
Virtualization
Documentation tools

Assessment

Assessment

Building an understanding of

- The SharePoint platform itself
- Your SharePoint environment as it exists today

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Accomplished through two "D" words

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Accomplished through two "D" words

Discovery

Discovery

- Logical architecture
- Physical deployment
- Configuration data
- Business data (content)
- Dependencies and interfaces

Before we go too far, we should probably talk about the other "D" word

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You're going to have to document your discoveries and SharePoint itself

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You're going to have to document your discoveries and SharePoint itself

Believe it or not, there are tools that can help.

Logical Architecture

- Focuses on the SharePoint's software/service components, what they do, and how they relate to one another
- Particular attention is placed on platform elements you use

Commonly documented

- IIS application pools
- SharePoint Web applications
- Service applications (Search, BCS, Managed Metadata, etc.)
- Zones and alternate access mappings
- Web application policies
- Content databases
- Site collections
- My Sites

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Goal: show which pieces of SharePoint are in-use, how they interrelate, and how they work together

Think "birds-eye" view of logical farm components - not physical layout/usage

Physical Architecture

- Focuses on SharePoint's implementation across a set of infrastructure components and hardware

Commonly documented

- Physical servers used by SharePoint
- SQL Servers
- Storage area networks (SANs)
- Switches
- Wide area network (WAN) connections
- Firewalls
- Hardware load balancers
- Active Directory domain controllers
- Email relays and gateways

The modern monkeywrench that makes all of this more complicated:

Virtualization

Logical Architecture

Physical Architecture

- 33% of small and mid-size businesses (SMBs) admitted that they do not back up virtual servers as often as physical servers

- 49% back up virtual machines weekly or monthly

- 37% back up virtual machines each day

Source: Acronis Global Disaster Recovery Index 2012
http://acronisinfo.com/?attachment_id=521

The modern monkeywrench that makes all of this more complicated:

Virtualization

Logical Architecture

Physical Architecture

Configuration Data

- Focuses on the data and settings that make SharePoint and its constituent components/pieces operate.

Commonly includes

- Farm configuration database
- Non-content service application databases
- Web.config files
- IIS7 configuration files
- Other configuration stores tied to logical architecture items

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Initially, it is more important to understand where data resides and the form it takes than to document actual settings

Pay close attention to secure configuration data, configuration data that is stored in a tough-to-reach manner, and distributed configuration

Business Data

- This is data that gets created and exists within SharePoint as a result of day-to-day business

If you remember nothing else, remember this:

Content databases =

as in "most important business data locations to protect"

Dependencies & interfaces

- These are the points where SharePoint touches other line of business systems - including other SharePoint farms.

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Some examples

- HR Data consumed through an external list using BCS
- Search that is supplied through a separate services-only SharePoint farm
- A Page Viewer web part that exposes a non-SharePoint Web application using an iframe
- InfoPath forms that pull data from (or write data to) non-SharePoint systems

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These are important to identify for purposes of determining what is ultimately included in (and excluded from) your SharePoint DR plan

Documentation tools

Creating SharePoint diagrams

Technical diagrams for SharePoint 2013
https://technet.microsoft.com/en-us/library/cc263199(v=office.15).aspx

Visio stencils for IT Pro posters
http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=11616

PowerShell farm documentation

Document farm configuration settings (SharePoint Foundation 2013)
https://technet.microsoft.com/en-us/library/ff645391(v=office.15).aspx

Document farm configuration settings in SharePoint 2013
https://technet.microsoft.com/en-us/library/ff645391(v=office.15).aspx

Documentation Toolkit for SharePoint

http://www.spdockit.com/

Note: Not free

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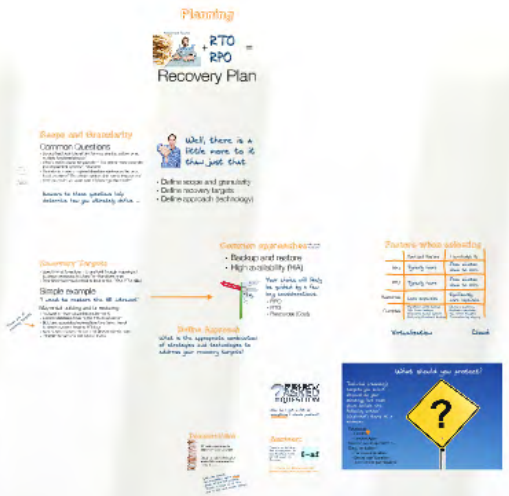
Planning
RTO
RPO
Recovery Plan
Well, there is a little more to it than just that
Define scope and granularity
Define recovery targets
Define approach (technology)
Common approaches
Backup and restore
High availability (HA)
Factors when selecting
What should you protect?

Planning

Planning

Assessment Results

Planning

Assessment Results

+

RTO

RPO

Planning

Assessment Results

\+ RTO
RPO

=

Recovery Plan

Well, there is a little more to it than just that

- Define scope and granularity
- Define recovery targets
- Define approach (technology)

Scope and Granularity

Scope and Granularity

Common Questions

- Do you treat your SharePoint farm as one big system or as multiple functional pieces?
- What's not in-scope for your plan? Are one or more separate (but dependent systems) included?
- How do you handle regional disasters such as earthquake, flood, or attack? The choice carries data center implications*
- Can you (or do you even want to) leverage the cloud?*

- 23% of all businesses don't have an offsite backup strategy in place today

- 42% rely on onsite backups to tape or disk and then take those (physically) offsite each day

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Scope and Granularity

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Cloud computing

- Is not a DR "magic bullet"
- Simplifies some aspects of DR (availability) but complicates others (RPO/RTO, security)
- Comes in many different shapes, forms, and hybrids (Office 365, ITaS, private cloud, etc.)

Figure out if the cloud will be part of your DR strategy early on!

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Answers to these questions help determine how you ultimately define ...

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Recovery Targets

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- Specify what to restore in SharePoint through mapping of business processes to SharePoint functional area
- Prioritized from most critical to least critical (RPO, RTO, $$$)

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Simple example

"I need to restore the HR intranet"

May entail building and/or restoring:

- A SharePoint farm (baseline environment)
- Content database housing the HR site collection
- BCS and associated connections to external line-of-business systems housing HR data
- Secure Store service for required BCS credential sets
- InfoPath Services for HR-related forms

These are all recovery targets

Define Approach

What is the appropriate combination of strategies and technologies to address your recovery targets?

Common approaches with many variations

- Backup and restore
- High availability (HA)

Your choice will likely be guided by a few key considerations:

- RPO
- RTO
- Resources (Cost)

Factors when selecting

	Backup & Restore	High Availability
RPO	Typically hours	From minutes down to zero
RTO	Typically hours	From minutes down to zero
Resources	Less expensive	Significantly more expensive
Examples	SharePoint native backups SQL Server backups Enterprise backup systems 3rd party SharePoint backups	Windows clustering Replication products SQL Server AlwaysOn Transaction log shipping

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Virtualization

Cloud

What should you protect?

What should you protect?

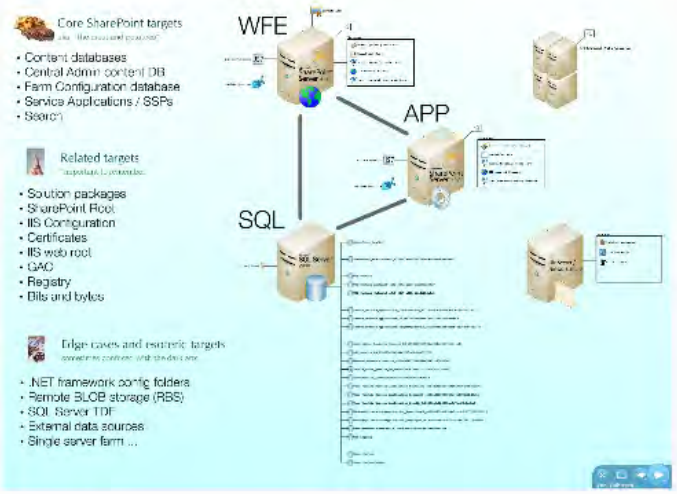
Technical (recovery) targets you select depend on your strategy, but most plans include the following critical (technical) items at a minimum:

- Databases
  - Content
  - Service Apps
- Solution packages (WSPs)
- Documentation
  - Farm configuration
  - Server configuration
  - Accounts & permissions

How do I get a list of everything I should protect?

Answer:

There is no definitive "list of everything." No two SharePoint farms (or DR plans) are the same.



Core SharePoint targets

aka, "the meat and potatoes"

- Content databases
- Central Admin content DB
- Farm Configuration database
- Service Applications / SSPs
- Search

Related targets

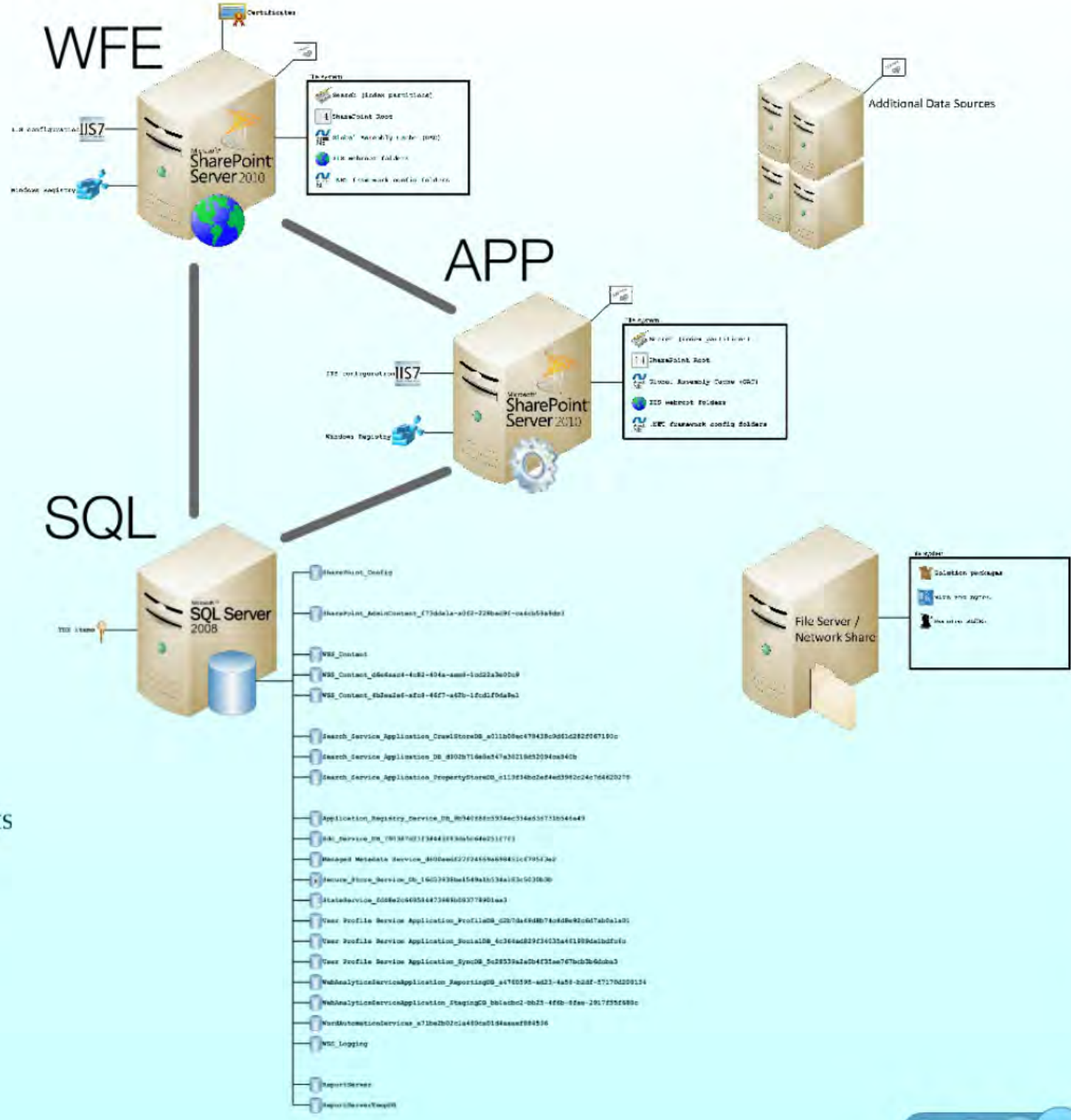
"important to remember"

- Solution packages
- SharePoint Root
- IIS Configuration
- Certificates
- IIS web root
- GAC
- Registry
- Bits and bytes

Edge cases and esoteric targets

sometimes confused with the dark arts ...

- .NET framework config folders
- Remote BLOB storage (RBS)
- SQL Server TDE
- External data sources
- Single server farm ...



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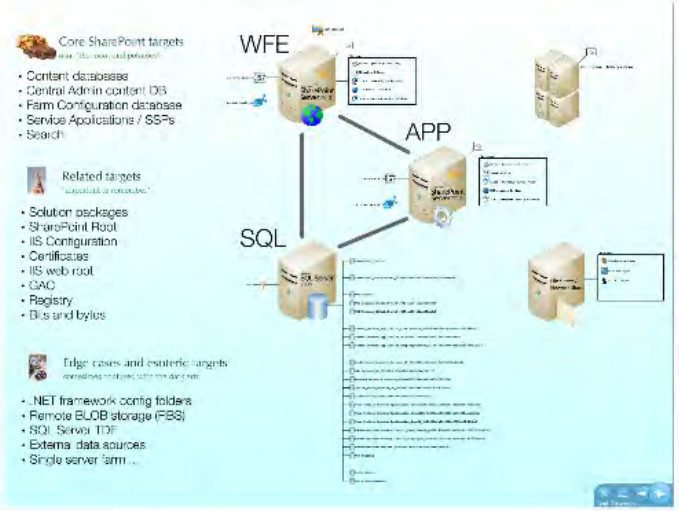

You'll have to build your own list based on what you use in your farm

Documentation

Of course you need to document your DR plan!

Documentation of the plan spans this phase and the next phase ...

plan!

Documentation of the plan spans this phase and the next phase ...

Let's be honest: documentation spans every phase of the DR process. There's a focus on it here and in the next phase, though.

The DR Process

Assessment

Planning

Maintenance

Implementation

Implementation

Implementation

Where the rubber meets the road

Implementation

Where the rubber meets the road

Write the plans ...

Assemble resources ...

How do I write a recovery plan?

How do I write a recovery plan?

Writing a recovery plan

Start by talking to those in your organization who have some responsibility for business continuity.

Wri

How do I write a recovery plan?

Writing a recovery plan

Characteristics of a good recovery plan

A recovery plan:

Writing a recovery plan

Characteristics of a good recovery plan

- The plan should address a discrete system or subsystem

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Piece of cake, right?

Not really.

Recovery plans are living documents

Iterate
Iterate
Iterate
Iterate
....

Implementation

Where the rubber meets the road

Write the plans ...

Assemble resources ...

Assemble resources ...

Some things to consider

Software

- Licenses
- Install media

Physical storage

- Documents/plans/lists/etc.
- Secure or sensitive items

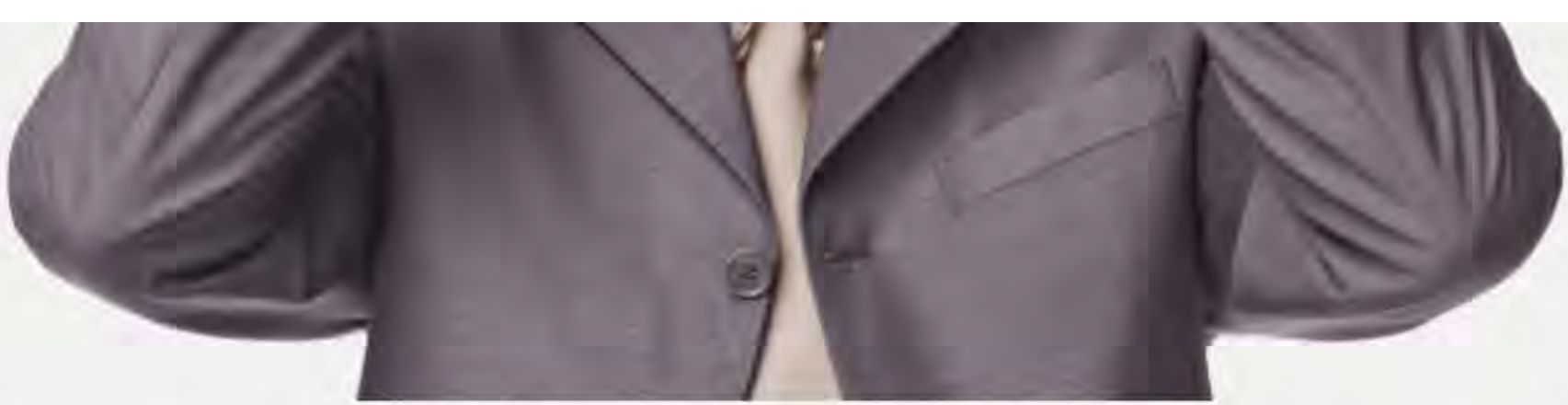
Hardware

- SharePoint Servers
- SQL Servers
- Switches
- Storage/SANs
- Firewalls
- AD controllers/appliances
- DNS servers/appliances
- Load balancers

Facilities (if required)

- Rent/buy space
- Data center build-out
- WAN connectivity
- HVAC
- Fire suppression
- (Voice) communications
- Security
- Backup generators/power

Don‘t lose sight



Your SharePoint recovery plans should be tying into one or more bigger BCPs

- Communications plan tie-ins
- Criteria for DR plan activation
- Clear documentation of (manual) workarounds for non-restored functionality
- Integration points with other DR plans

The DR Process

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Maintenance

The part that many of us wish would simply go away.

What's included?

- Exercises that test and validate DR plans
- Updates to your plans as SharePoint environments change
- Budgeting for the changes that will happen

Testing

Testing

How testing can help you

- Identify gaps in plans so that you can address them before a disaster
- Validate that you can actually hit RPO and (especially) RTO targets
- With repetition, you can reduce your RTO (practice makes perfect!)

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- Identify gaps in plans so that you can address them before a disaster
- Validate that you can actually hit RPO and (especially) RTO targets
- With repetition, you can reduce your RTO (practice makes perfect!)

Bottom line: without testing you'll never know if your recovery plans actually work

Updating Your Plan

As your SharePoint environments change, so too must your recovery plans

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- RPO and RTO may change
- SharePoint farms grow and evolve
- SharePoint used for new purposes
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Your DR plans are living documents ...

Don‘t leave your recovery plans to become “undead“

Don't leave your recovery plans to become "undead"

They don't "go away" because you abandon them;
they just take on an un-life of their own ...

Budgeting

Both time and money

Time

- Carry out DR tests (personnel, facilities time, business downtime)
- Review, maintain and update DR plans
- Review changes to SharePoint farms
- Audit plans with an eye towards compliance with any regulations

Both time An

ud money

Money

- Salary costs associated with dedicating time to DR activities
- Costs associated with offsite facilities
- Recurring licensing costs*
- Costs associated with independent auditing of systems and DR plans

The DR Process

Assessment

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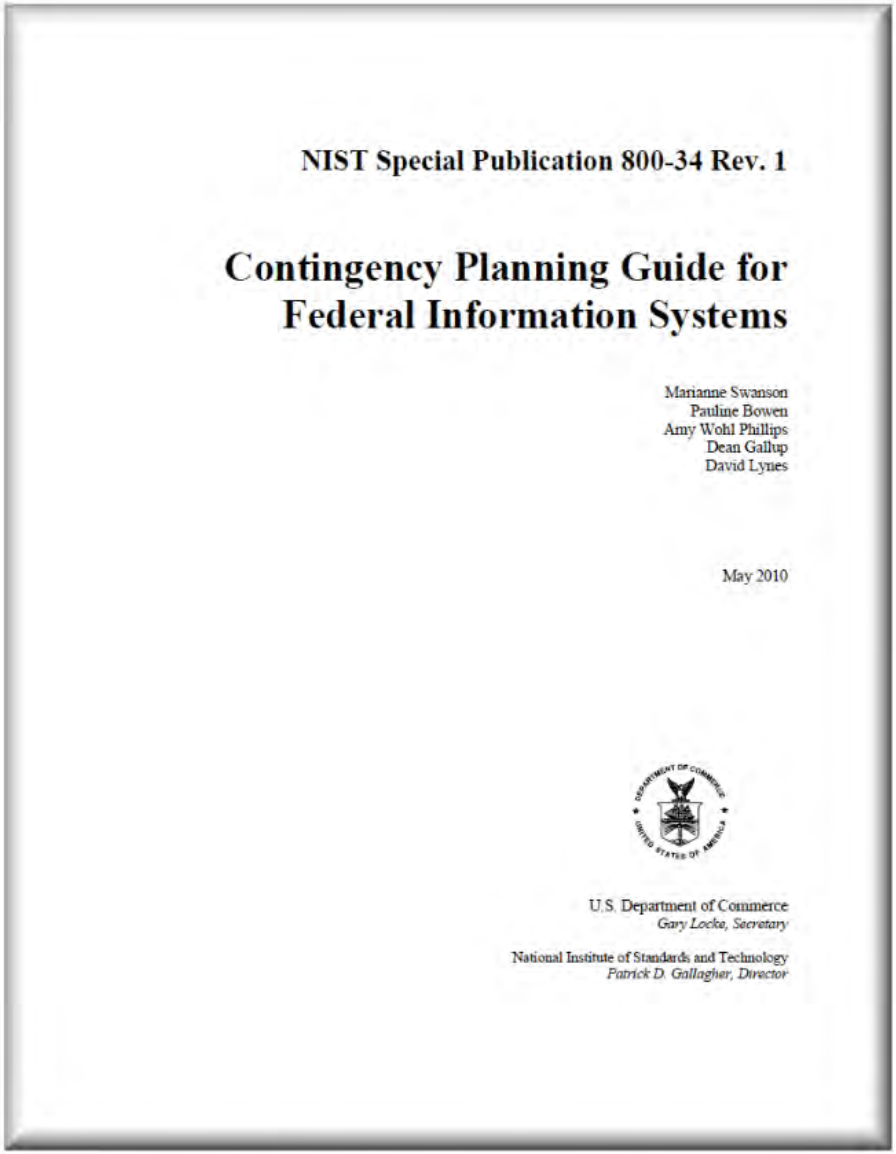
The dirty secret

Nobody gets this "right" the first time; that's why it's a continuous process

Assessm

An important resource



NIST Special Publication 800-34 Rev. 1

Contingency Planning Guide for Federal Information Systems

Marianne Swanson
Pauline Bowen
Amy Wohl Phillips
Dean Gallup
David Lynes

May 2010

U.S. Department of Commerce
Gary Locke, Secretary

National Institute of Standards and Technology
Patrick D. Gallagher, Director

NIST Special Publication 800-34, Rev. 1, Contingency Planning Guide for Federal Information Systems

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=905266

Wrap-up

- Remember the order of operations:

  Risk Analysis → BIA → BCP → DR Plan

- RPO and RTO drive many of the DR planning decisions you'll make

- No two SharePoint environments are alike; no two DR plans are identical

- Recovery plans are living documents that you'll constantly test and revise

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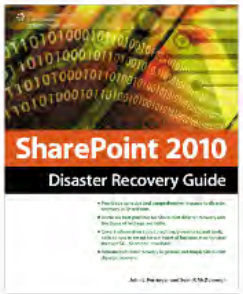

SharePoint 2010 Disaster Recovery Guide

http://tinyurl.com/SPDRGuide2010

SharePoint 2007 Disaster Recovery Guide

http://tinyurl.com/SPDRGuide2007

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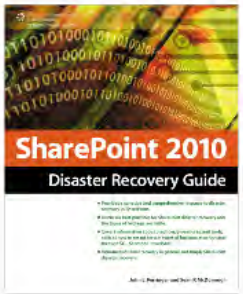

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