A Business Continuity Solution Selection Methodology

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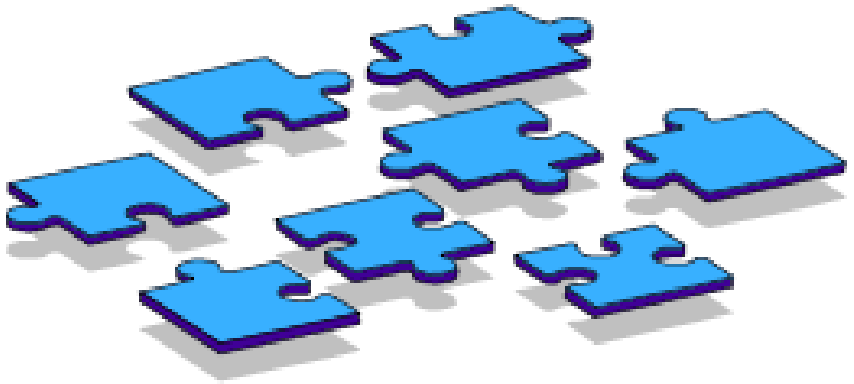
Disclaimer

Many solutions exist in the marketplace to address IT Business Continuity

- How can we select the optimum combination of solutions?
- How do we organize valid business continuity technologies?
- How do we manage these valid business continuity technologies?
- In the following slides we will look at Solution Selection Methodology that can help with this issue

Business Continuity solutions are viewed as individual product technologies and components

- Each vendor and product area tends to build separate pieces of the solution
- Insufficient interlocking of the different areas
- Business Continuance and Disaster Recovery need to be seen as an integrated product solution
- Many valid technologies, but how to choose among them?



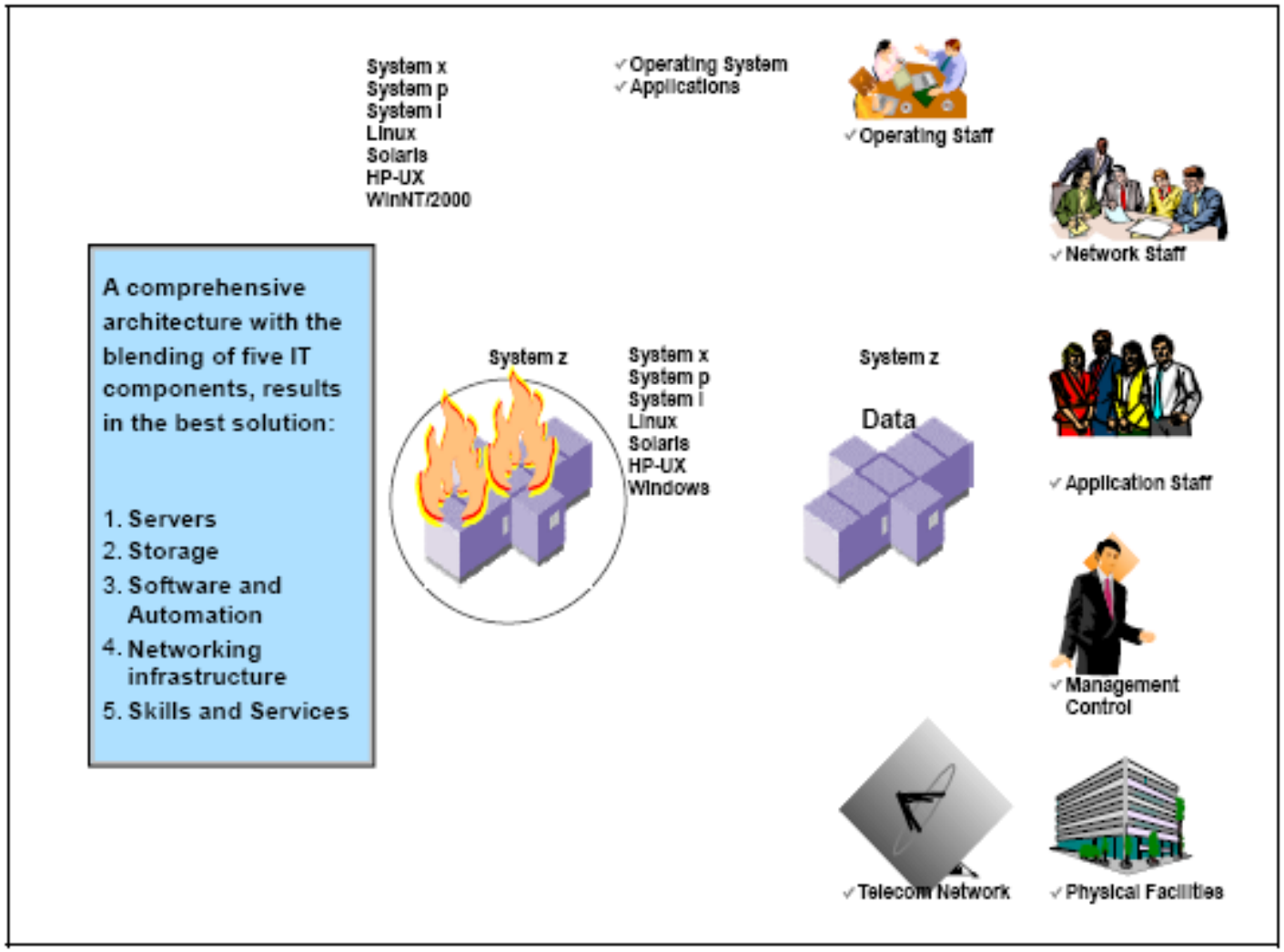
A Solution Selection Methodology can be applied to sort, summarize, and organize various business requirements

- The methodology can then be applied to those business requirements to identify efficiently a proper
- A valid subset of Business Continuity technologies can then be applied based on the methodology to address the requirements
- With the desired *Recovery Time Objective (*RTO) and using the concepts of the *Tiers of Business Continuity* and *Solution Segmentation* to identify methodically the appropriate *candidate* Business Continuity solutions can be selected from among today's Business Continuity technologies

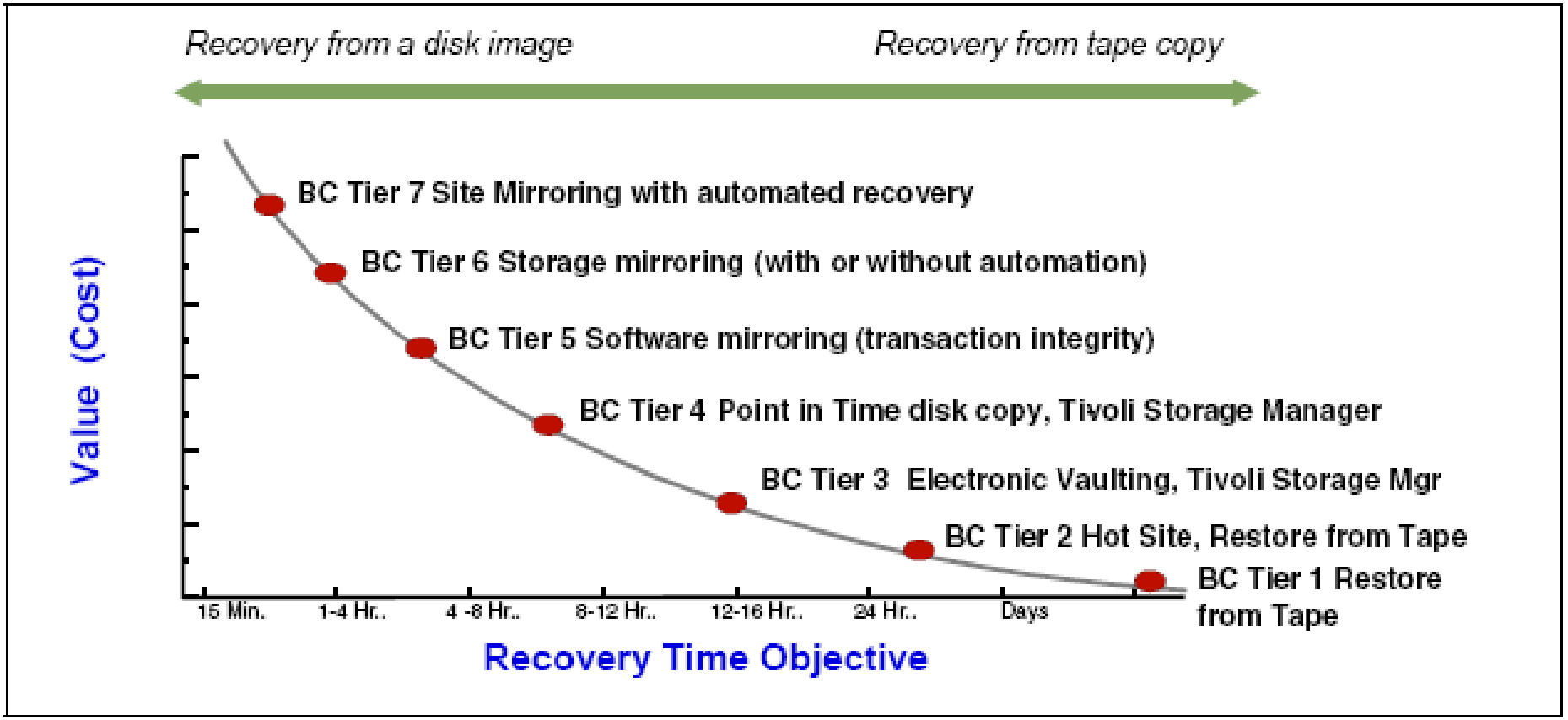
Categorize all valid Business Continuity IT technologies into five component domains

- Servers
- Storage
- Software and automation
- Networking and physical infrastructure
- Skills and services that are required to implement and operate these components

IT infrastructure that is necessary to support the Business Continuity solution is inserted into one of these five components

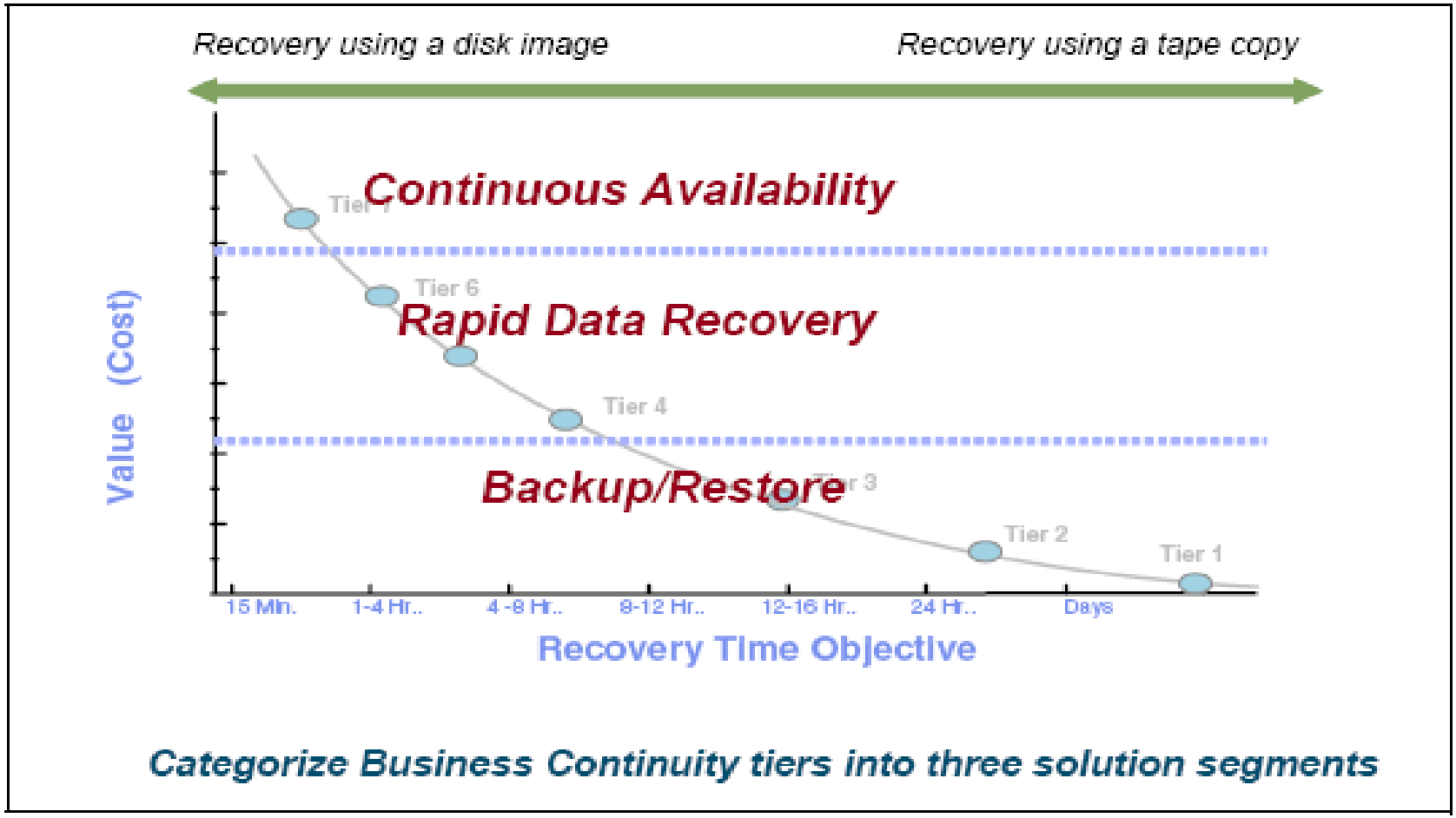


Business Continuity tiers and some of IBM's Business Continuity technologies by tier



The reason there are multiple Business Continuity tiers is that as the RTO time decreases, the optimum Business Continuity technologies for RTO must change. For any given RTO, there are always a particular set of optimum price or performance Business Continuity technologies.

Map the organization's business processes and IT applications onto the Business Continuity tiers



Best practices for doing this is break applications and business processes into segments, according to the speed of recovery that is required

Three segments appear to be optimum with neither underkill or overkill

- **Continuous Availability**
  - 24x7 application and data availability (server, storage, and network availability)
  - Automated failover of total systems or site failover
  - Very fast and transparent recovery of servers, storage, network
  - Ultimate Disaster Recovery: Protection against site disasters, system failures
  - General RTO guideline: minutes to less than 2 hours
- **Rapid Data Recovery**
  - High availability of data and storage systems (storage resiliency)
  - Automated or manual failover of storage systems
  - Fast recovery of data or storage from disasters or storage system failures
  - Disaster Recovery from replicated disk storage systems
  - General RTO guideline: 2 to 8 hours
- **Backup/Restore**
  - Backup and restore from tape or disk
  - Disaster Recovery from tape
  - RTO = 8 hours to days

Each segment builds upon foundation of the preceding segment

- Business Continuity functionality of each segment is built upon the technology foundation of the segment that is below it.
  - In other words, Backup/Restore technologies are the necessary foundations for more advanced technologies
- It is a matter of building upwards upon the foundations of the technologies of the previous segment.
- Best practices for Business Continuity implementation is to create a multiple phase project in which the overall Business Continuity solution is built step-by-step upon the foundation of the previous segment's technology layer

A blended and optimized enterprise Business Continuity architecture can be created by using segmenting concepts

- Categorize the business' entire set of business processes into three segments:
  - Low Tolerance to Outage
  - Somewhat Tolerant to Outage
  - Very Tolerant to Outage
- Keep in mind some business processes that are not by themselves critical, they do feed the critical business processes
  - Those applications need to be included in the higher tier

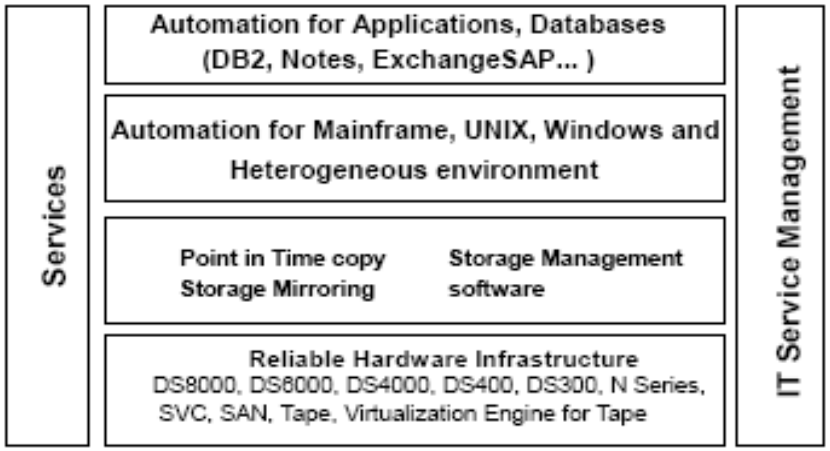
Segments are constructed based on business needs

- Within each segment, there are multiple Business Continuity tiers of technology
- Individual tiers represent the major Business Continuity technology *choices* for the band
- It is not necessary to use all the Business Continuity tiers
- It is not necessary to use all the technologies
- After segmenting business processes and applications into the three bands, select *one* best strategic Business Continuity methodology for the band
- The contents of the tiers are the *candidate technologies* from which the strategic methodology is chosen for that application segment

To be successful, management must understand and back the plan

- Business Continuity tiers chart and business process segmentation for your organization is also very useful as a communication tool
- Tiers and segmentation concept is simple enough that non-technical personnel can see the bottom line RTO end result of technical evaluations
- Senior management does not need to understand the technology that is inside the tier or segment
- They can clearly see the RTO and the associated cost versus RTO trade-off

Sample of IBM software and where they fit into the tiers



- **Server**
  - **System z:**
    - Geographically Dispersed Parallel Sysplex (GDPS) - *Tier 7*
  - **System p:**
    - AIX/HACMP (High Availability Clustered Multi-Processors) with Metro Mirror - *(Tier 7)*
  - **System i:**
    - High Availability Business Partner software: Vision, Lakeview, DataMirror *(Tier 7)*

#2: Data integrity

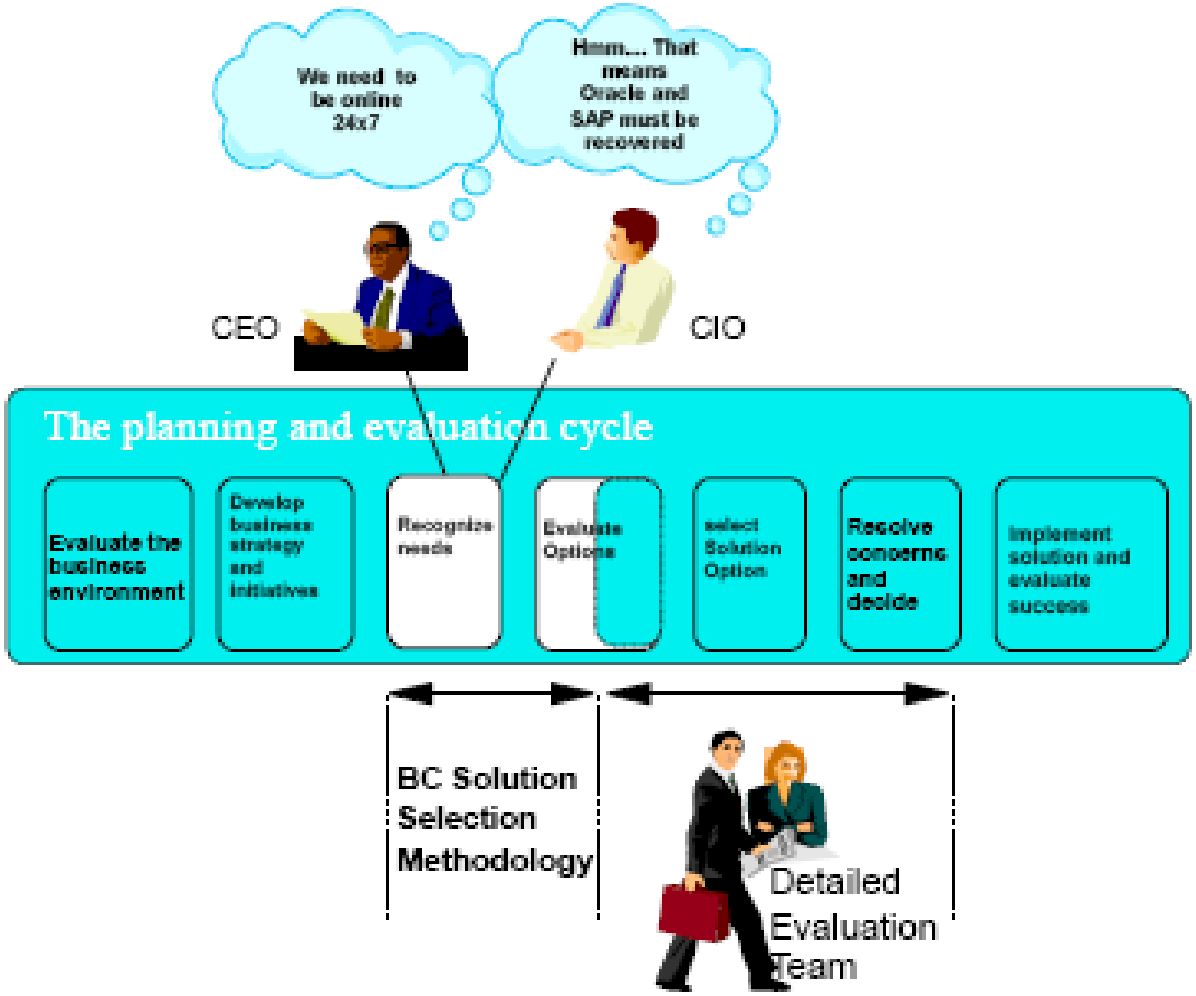
- **System Storage**
  - **Metro Mirror** *(Tier 6)*
  - **Global Mirror** *(Tier 6)*
  - **Virtual Tape Server Peer to Peer** *(Tier 6)*
  - **TS7700 Grid** *(Tier 6)*
  - **DS4000, DS400, DS300 Metro Mirror** *(Tier 6)*
  - **DS Family FlashCopy** *(Tier 4)*
  - **3590, 3592, LTO tape** *(Tier 1,2,3,4)*
  - **Storage software** *(Tier 1,2,3,4)*

#1: Byte movers

- **Software and Automation**
  - DB2, IMS, CICS, WebSphere *(Tier 5)*
  - WebSphere, MQSeries *(Tier 5)*
  - IBM Tivoli Storage Manager *(Tier 2,3,4)*
- **Networking and Infrastructure**
  - **IBM Global Services, IBM Business Partners, IBM Networking Partners**
- **IBM Global Services, Business Partner Services**

#3: Transaction Integrity

Establish a generalized vision of the requirements by invoking the the methodology *early* in the selection cycle of technology

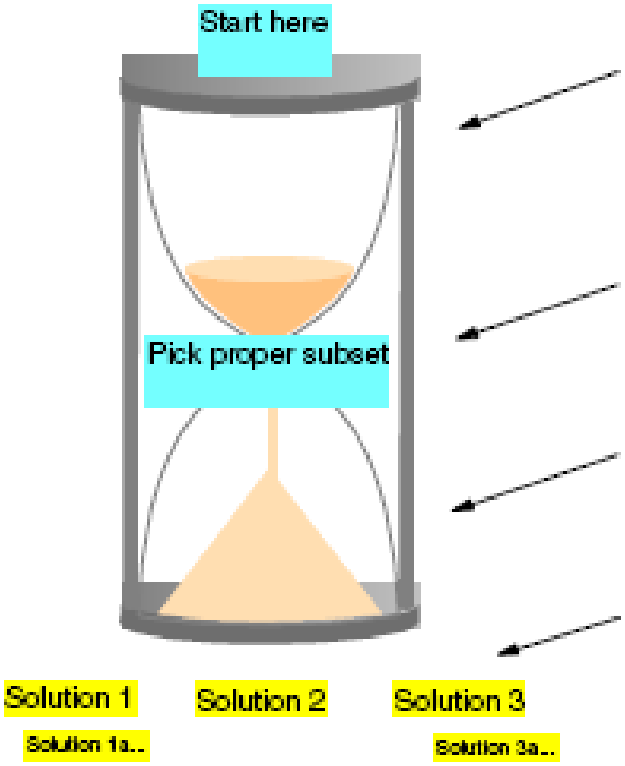


Gather information with the right questions

Start with:

1. What is/are the business processes and applications that need to be recovered?
2. On what IT platform or platforms does it run?
3. What is the desired RTO?
4. What is the distance between the recovery sites (if there is one)?
5. What is the form of connectivity or infrastructure transport that will be used to transport the data to the recovery site?
   - How much bandwidth is that?
6. What are the specific IT hardware and software configurations that need to be recovered?
7. What is the desired level of recovery? (Planned / Unplanned / Transaction Integrity)
8. What is the RPO?
9. What is the amount of data that needs to be recovered?
10. Who will design the solution?
11. Who will implement the solution?

Use the hourglass concept to segment the questions



A. Ask Specific Questions in Specific Order
- Ask proper high-level questions
  - Application, platform, RTO, Distance, Connectivity, RPO, Vendor……
- Order of questions:
  - Designed to eliminate many non-qualifying solutions up front
- Document answers

'Above the Neck'

B. Use RTO to pick appropriate solution *subset*
- Organize solutions by Tiers (creates RTO subset)

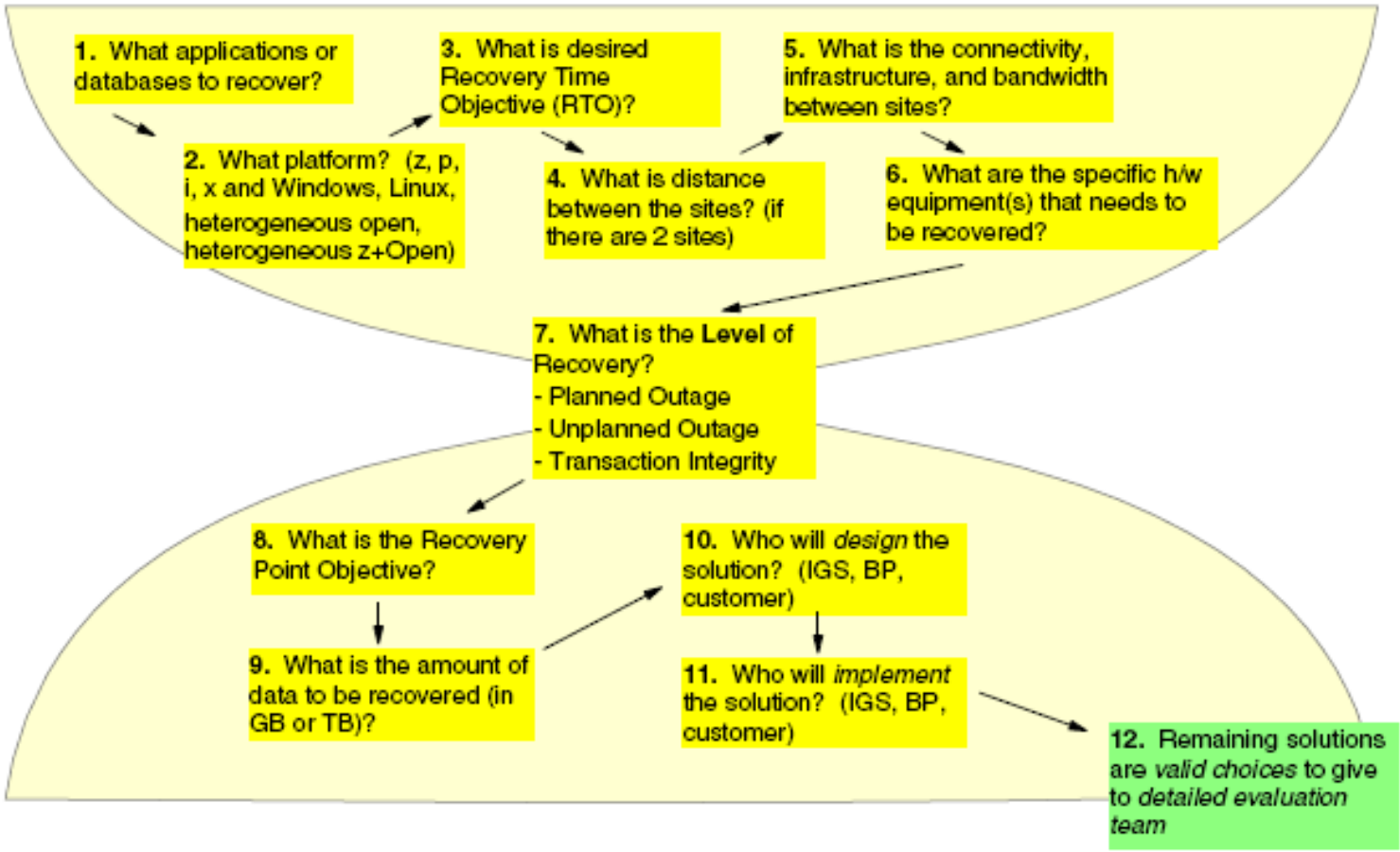
'At the Neck'

C. From among *subset*, use question answers to eliminate non-solutions
- Apply answers gathered previously

'Below the Neck'

D. Turn over remaining valid solutions to detailed evaluation team
- As appropropriate, can then expand each solution to multiple flavors, tailoring for the customer's exact needs

Ask questions in a specific order to determine a solution set



Note: this assumes a Risk Assessment, Business Impact Analysis, and current environment assessment has been completed. The answers to these questions come from that work.

Use RTO and Level of Recovery to identify candidate solutions

The Recovery Time Objective (RTO) maps to a Business Continuity Tier

- Business Continuity Tier 7 RTO: continuous to 2 hours
- Business Continuity Tier 6 RTO: 1 to 6 hours
- Business Continuity Tier 5 RTO: 4 to 8 hours
- Business Continuity Tier 4 RTO: 6-12 hours
- Business Continuity Tier 3 RTO: 12-24 hours
- Business Continuity Tier 2, more than 24 hours
- Business Continuity Tier1 RTO: 24 hours to 48 hours +

Use RTO and Level of Recovery to identify candidate solutions (continued)

- **Planned outage:** The solution is required to only facilitate planned outages or data migrations
  - Unplanned outage recovery is not necessary
- **Unplanned outage:** The solution is required, at the hardware and data integrity level, to facilitate unplanned outage recovery.
  - Implies that planned outage support is also available in this solution
  - Dot perform transaction integrity recovery at the application or database level
- **Transaction integrity:** The solution is required to provide unplanned outage recovery at the application and database transaction integrity level
  - This level relies upon an underlying assumption that hardware level planned outage and unplanned outage support is also available

Solutions identified by RTO and level of recovery - example

Use RTO, recovery level to identify solution subset in matrix...

	Tier 7	Tier 6	Tier 4
Planned Outages		Metro Mirror, Global Mirror, Global Copy	Global Copy
Unplanned Outages	GDPS/PPRC GDPS/XRC GDPS/GM	z/OS Global Mirror, GDPS HyperSwap Mgr, TPC for Replication	Point in Time FlashCopy, VTS Peer to Peer TS7700 Grid
Transaction Integrity		IMS RSR, Oracle, DB2-specific... MQ	DB2-specific... MQ

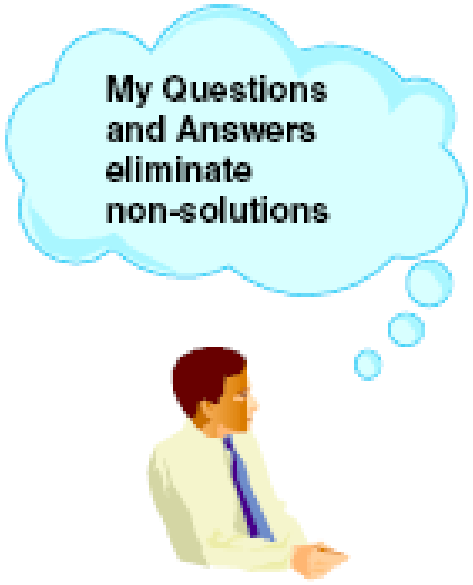
Eliminate those solutions which do not suit the RTO

Use RTO, recovery level to select subset...

	Tier 7	Tier 6	Tier 4
Planned outages			
Unplanned outages			
Transaction integrity			

Use 'answers' to eliminate non-solutions

	z/OS Global Mirror	GDPS HyperSwap Manager	TPC for Replication (TPCR)
Platform	System z only	System z and z + Distributed heterogeneous	System z and z + Distributed heterogeneous
Distance	any distance....	< 100KM	any distance
Recovery Time Objective	2-4 hours	1-4 hours	2-4 hours
Connectivity....	FICON/ESCON	FICON/Fibre	FICON/Fibre
Recovery Point Objective	few seconds to few minutes	zero data loss	few seconds to a few minutes
Valid Option?	No	Yes	No



Turn over the solutions to be evaluated in detail

- After indentifying a preliminary set of valid candidate Business Continuity solutions
- The candidate solutions would be turned over to a skilled evaluation team
- Valid identified candidate solutions also dictates what mix of skills will be necessary on the evaluation team
- The evaluation team will need to further configure the candidate solutions into more detailed configurations to complete the evaluation
- The team will still make the final decision as to which of the identified options (or the blend of them) is the one that should be selected.
- Do not expect this methodology to be a perfect decision tree.
- It's intent is to provide an initial identification, in a repeatable, teachable manner, that can be performed by staff of varying skill levels, including relatively inexperienced staff

The goal of this process is to quickly identify proper candidate technology and solutions

- As simple as this methodology sounds, Business Continuity solutions for a given set of requirements *is* of significant value
- Much less time and skill is necessary to reach this preliminary solution identification in the evaluation cycle than would otherwise be experienced
- This methodology can manage the preliminary evaluation phase more consistently and repeatedly
- Can be taught to others easily
- This methodology also supports our current best Business Continuity practices of segmenting

Update methodology as the technology changes

- This methodology flexible.
- The table-driven format allows for technology changes,
- Only the contents of the tiers chart change
- The methodology itself need not change
- Business Continuity technology is created or enhanced and results in an improvement of its tier of Business Continuity capability
- Add new technology to the appropriate RTO/Tier cell

QUESTIONS?
Please remember your session evaluation
Your Feedback is Important to Us

Sources

- ***IBM System Storage Business Continuity: Part 1 Planning Guide***, SG24-6547
- ***IBM System Storage Business Continuity: Part 2 Solutions Guide***, SG24-6548
- ***IBM System Storage Business Continuity Solutions Overview***, SG24-6684
- **IBM System Storage Business Continuity Solution Selection Methodology**