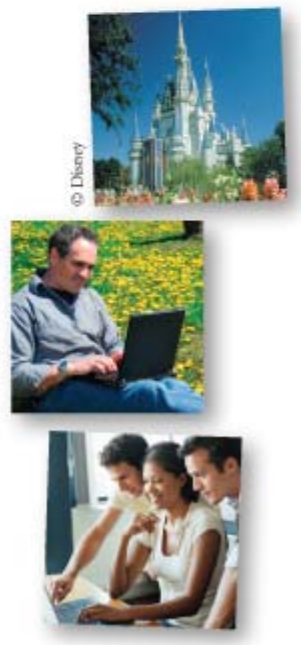
The CMDB at the Center of the Universe

Reg Harbeck
CA

Wednesday, February 27
Session 5331

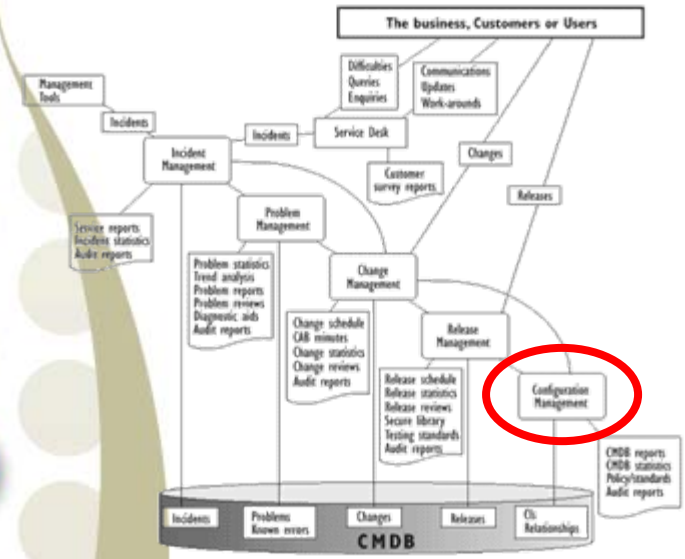


Purpose

- Clarify origin of CMDB concept and what it is
- Understand difference and equivalence between CMDB and Asset Management
- Review Principal Configuration Management Activities
- Key Success Factors

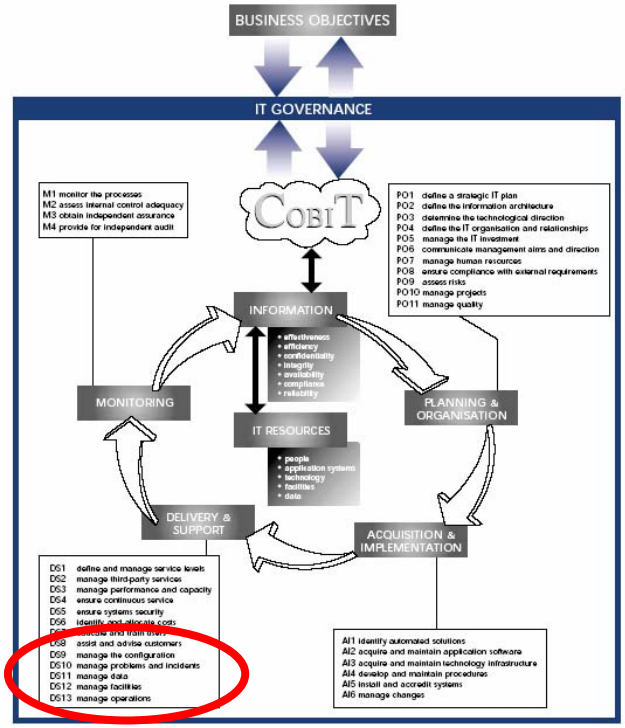
Where does it come from?

COBIT and ITIL have raised the need for a unique referential in the IT organization to enable decisions at all levels.



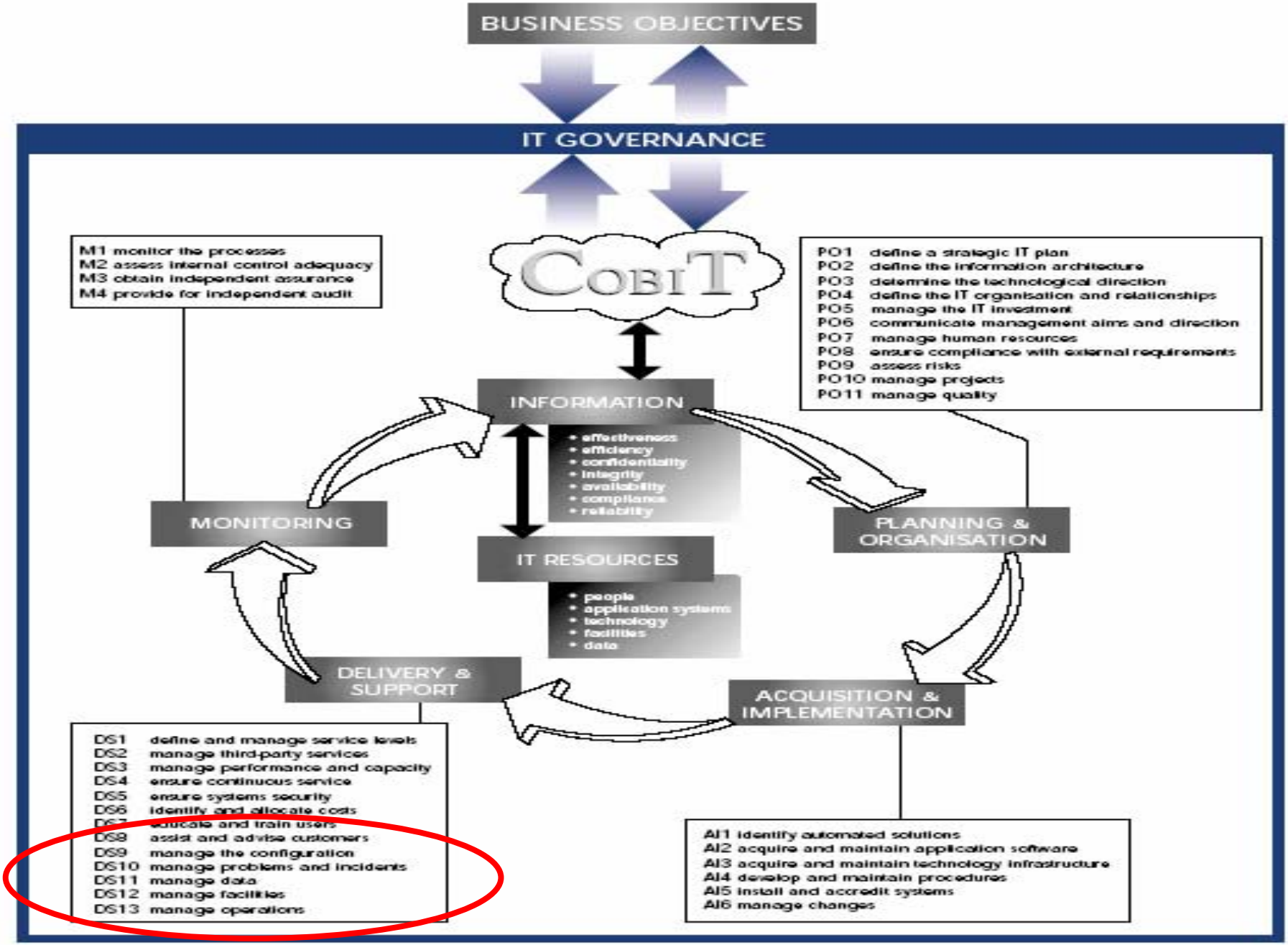
ITIL® Service Support

ITIL® an OGC Trademark



Complementary, they provide a complete vision of the Configuration Management Challenge:

- ✓**COBIT focuses on Controls**
- ✓**ITIL focuses on processes/activities**


BUSINESS OBJECTIVES
IT GOVERNANCE
COBIT
M1 monitor the processes
M2 assess internal control adequacy
M3 obtain independent assurance
M4 provide for independent audit
PO1 define a strategic IT plan
PO2 define the information architecture
PO3 determine the technological direction
PO4 define the IT organisation and relationships
PO5 manage the IT investment
PO6 communicate management aims and direction
PO7 manage human resources
PO8 ensure compliance with external requirements
PO9 assess risks
PO10 manage projects
PO11 manage quality
INFORMATION
effectiveness
efficiency
confidentiality
integrity
availability
compliance
reliability
MONITORING
PLANNING & ORGANISATION
IT RESOURCES
people
application systems
technology
facilities
data
DELIVERY & SUPPORT
ACQUISITION & IMPLEMENTATION
DS1 define and manage service levels
DS2 manage third-party services
DS3 manage performance and capacity
DS4 ensure continuous service
DS5 ensure systems security
DS6 identify and allocate costs
DS7 educate and train users
DS8 assist and advise customers
DS9 manage the configuration
DS10 manage problems and incidents
DS11 manage data
DS12 manage facilities
DS13 manage operations
AI1 identify automated solutions
AI2 acquire and maintain application software
AI3 acquire and maintain technology infrastructure
AI4 develop and maintain procedures
AI5 install and accredit systems
AI6 manage changes

What is a CMDB?

- A Unique Reference point containing Configuration Items, referencing physical items such as Server, Software Master CDs, Paper or Electronic Documents…
- A configuration item is a record comprising:
  - **S**tatus: define the current state of the item
  - **T**races: list item history i.e. all modification applied on the record such as record creation, status change, owner assignation, …
  - **A**ttributes: attributes that qualify the physical object such as name, serial number, memory, CPU, version, …
  - **R**elations: valuable relations with other Cis such as parent/child, is installed on, is based on, utilize, refer to, owned by …

Configuration Management, CI and CMDB

- **Configuration Management** is the process that covers the identification, recording, and reporting of IT components, including their versions, constituent components and *relationships*.

- **Configuration Item (CI)** is an identified and controlled resource of the IT Infrastructure

- **Configuration Management Database (CMDB)** is the underlying referential that contains all relevant details of each CI and details of the important *relationships* between CIs

Change and Configuration Management

- The **Configuration Management** process ensures that all details about the IT infrastructure components are accurately stored and updated in the Configuration Management Database (CMDB).

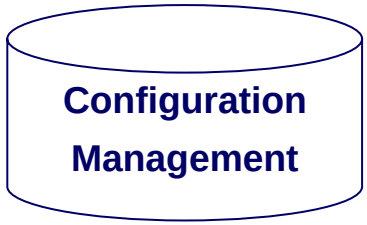
- The **Change Management** process is a standard method for implementing Changes while minimizing the introduction of Change-related Incidents in the infrastructure and IT services.

Configuration vs Asset Management

	Configuration	Asset
Focus on	**Business**	**Technical Infrastructure**
Objectives	Enable Decisions	Inventory Technical Equipment
Resource Managed	Service, Hardware, Software, Document, Security, Financial, Service Support, Procedure, Project..	Hardware and Software Information
Traces	Detailed	Limited
Attributes	Reduce to Strict Minimum	Very Detailed and Large
Relationships	Logical, Extended and Flexible	Technical and Basic

Configuration/Asset Management Differences

Business & Service Oriented



Objective: Enable Decisions

Contains: Business, Service, Hardware, Software, Document, Organizational, Security, Financial, Service Support, … information

Traces: History of change on status, attributes & relations

Attributes : Reduced to strict minimum

Relation: Extended and flexible

Finance Oriented

Objective: Optimize equipment costs & life cycle

Contains: Contract, Organizational, Accommodation, Hardware & Software information

Traces: History of change on status, attributes & relations

Attributes : Focus on financial data

Relation: Mainly contract related

Technology Oriented

Objective: inventory technical equipment

Contains: Hardware and Software information

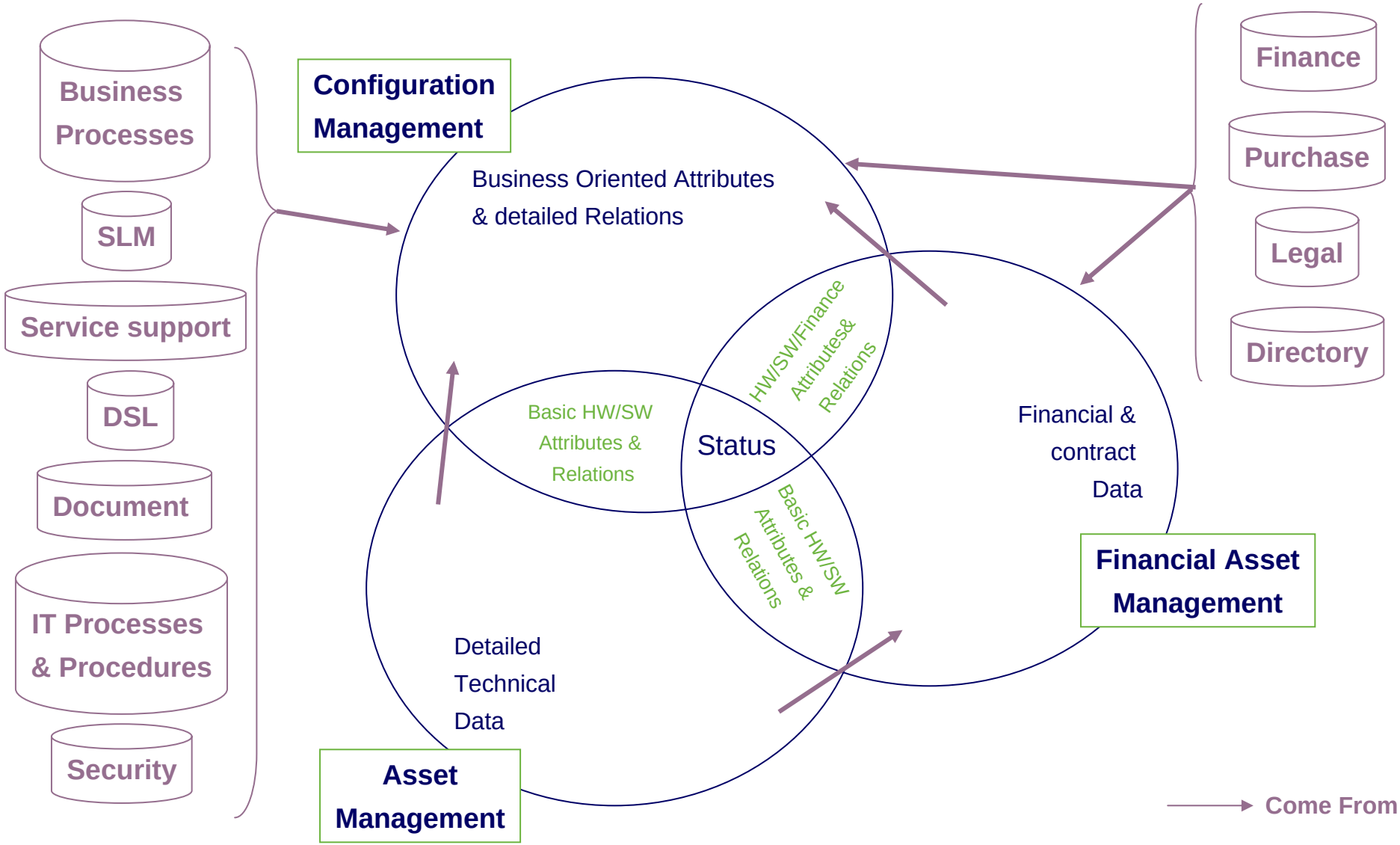
Traces: none

Attributes : very detailed and large

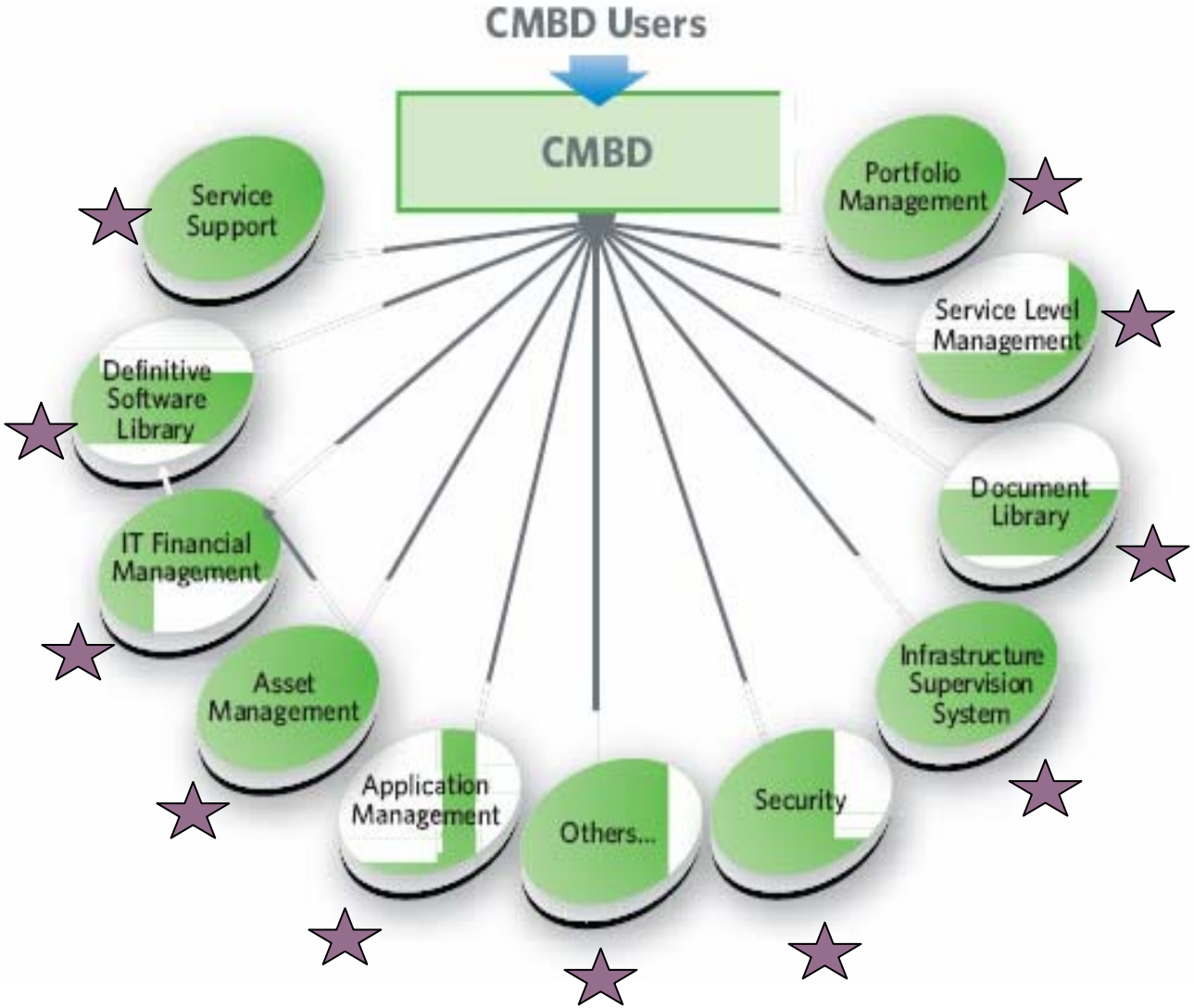
Relation: basic ones – « Software installed on Hardware »

Status

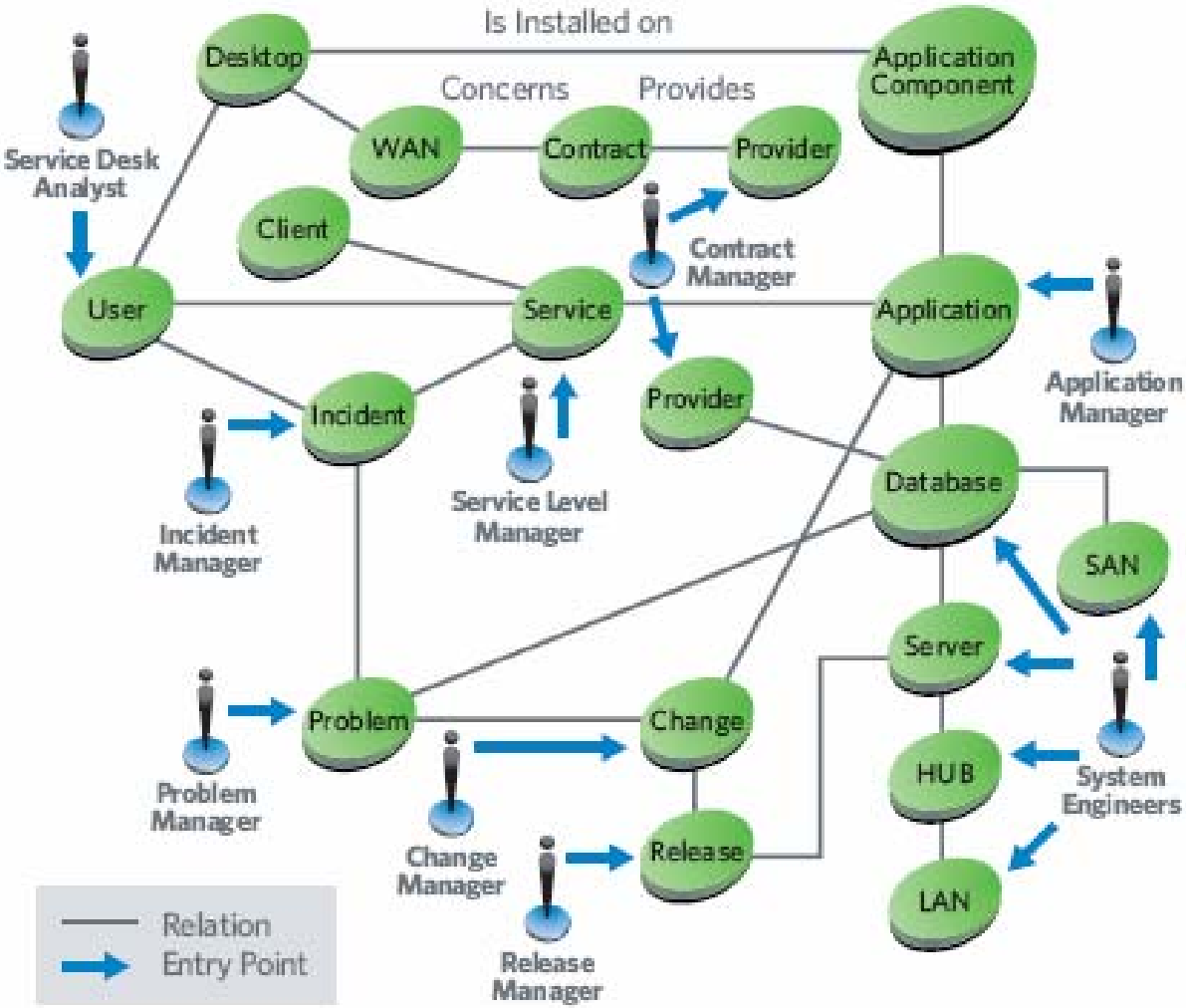
Configuration/Asset Management Equivalences



CMDB Federates IT Information

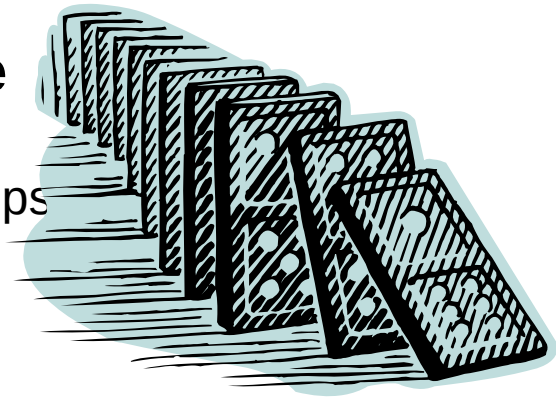


CMDB Structure



CMDB and Change Management

- **Provides a clear, accurate picture**
  - Configuration Items and their relationships
  - Impact Analysis
  - Minimize or prevent service disruptions



70% of Incidents are attributed to unplanned Changes
- *Gartner*

Where to Start with a CMDB??

"Top Down" rather than "Bottom Up"

- **Top Down**
  - Focus on critical IT services
  - IT services that fall under Change Management
  - Tactical process driven approach – quick wins
- **Bottom Up**
  - Bottom up approach can be too granular, far reaching and take years to implement

Why a CMDB?

- IT people have to make decisions on a day-to-day basis; the efficiency of their decision is based on the quality of the information they have to base that decision upon.
- Empowering decision means providing access to an accurate logical model of the infrastructure or a service.
- Improve IT Quality of Service and Process Maturity
- Required to:
  - Estimate Business Impact
  - Optimize cost control
  - Define priorities
  - Analyze change impacts
  - Do risk-analysis
  - Understand relations between items
  - Execute Avalability and Capacity
  - Investigate on root cause incidents
  - Enable Continuous improvement
  - …

Who needs a CMDB?

- Most in the IT Service Management organization, eg:
  - The incident manager to prioritize and diagnose incidents
  - Problem manager to investigate root cause
  - Change Manager to estimate impact and risk
  - Release Manager to design, build and configure releases
  - Service Level Manager to estimate business and IT impact of a new or changed SLA
  - Availability Manager to identify Single Point Of Failure or Component Failure Impact Assessment
  - Capacity Manager for modeling
  - Financial management to identify cost center and define service oriented budgets
  - Continuity Manager to design continuity strategy

Who needs a CMDB?

- And others
  - Executive management to make strategic decisions
  - Senior Management to prioritize continuous improvement priorities
  - Contract Management to qualify contract optimization
  - Quality Management to monitor process adoption
  - External Providers to follow infrastructure changes
  - Application Management to analyze evolution requests
  - Application Management to ensure efficient application maintenance
  - Security Management to investigate on possible security failures and run risk analyses
  - Audit Team to run assessment
  - …

Who maintains a CMDB?

- At least Configuration, Change and Release Managers must be involved to ensure reliability of the information stored in the CMDB.
- Directly or indirectly every person responsible for a set of information contained in the CMDB.
  - All Service Managers
  - Infrastructure Management
  - Application Management
  - Contract Management
  - Human Resource
  - Finance

Example of Activities Driving CMDB Updates

- Asset Status Change
- Recording of Request, Incident, Problem, Change and Release information
- IT Inventory for Hardware and Software
- New Software Component in the Definitive Software Library
- New Service Level Agreement
- New Provider Contract
- Organizational change
- New Vital Business Function
- New Design and Test documents
- New continuity procedure

How to implement a CMDB?

- A CMDB usually starts small and grow progressively
- Key activities to implement & manage a CMDB are:
  - Plan
  - Identify
  - Control
  - Status Accounting
  - Verification & Audit
- Keep It Simple & Straightforward (KISS)

Principal Plan Activities

- Define a strategy (where do we want to be?)
  - Clearly define who will use the CMDB
  - Understand required by CMDB Users to make decisions
  - Line-up expected benefits
  - Estimate associated costs
  - Evaluate Critical Success Factors
- Compare with Actual situation (where are we?)
- Define required human, organization & technical interfaces (How to get there)
- Consider logistical aspects (project team, budget, …)
- Deliver a Configuration Management Plan
  - Roles et responsibilities
  - High Level CMDB Design
  - Procedures and rules
- Communicate plan

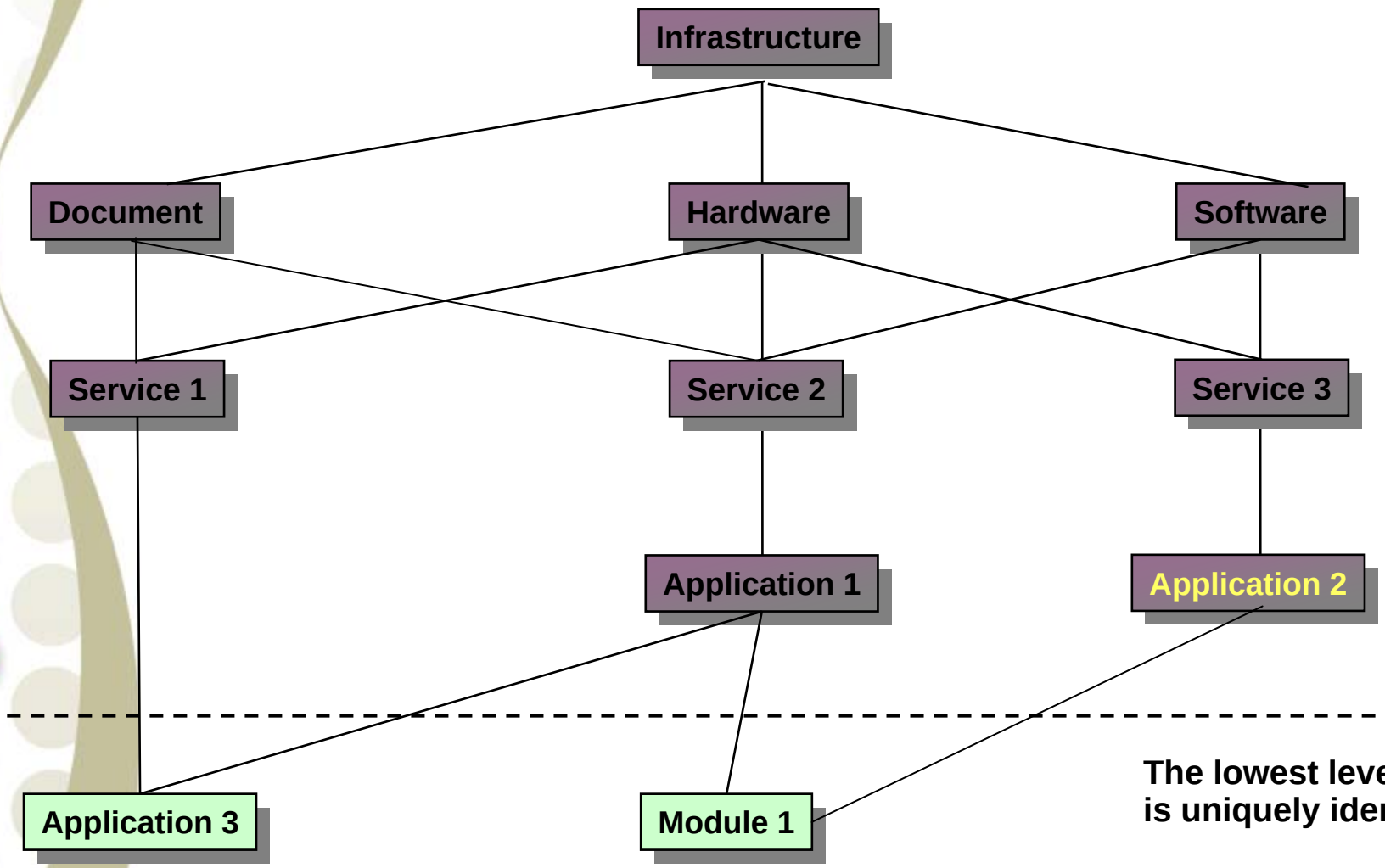
Principal Identification Activities

- Agree on Configuration Item Types (classes) the CMDB will contain
- Define CMDB Structure and Level (depth)
- Identify Configuration Items and associated life cycle (where does life start? Procurement, Change, Release, ICT, ...)
- Define name convention
- List agreed relations
- Define reconciliation rules and loads strategy
- Select and implement CMDB Tools
- Collect and load Data
- Initialize relations

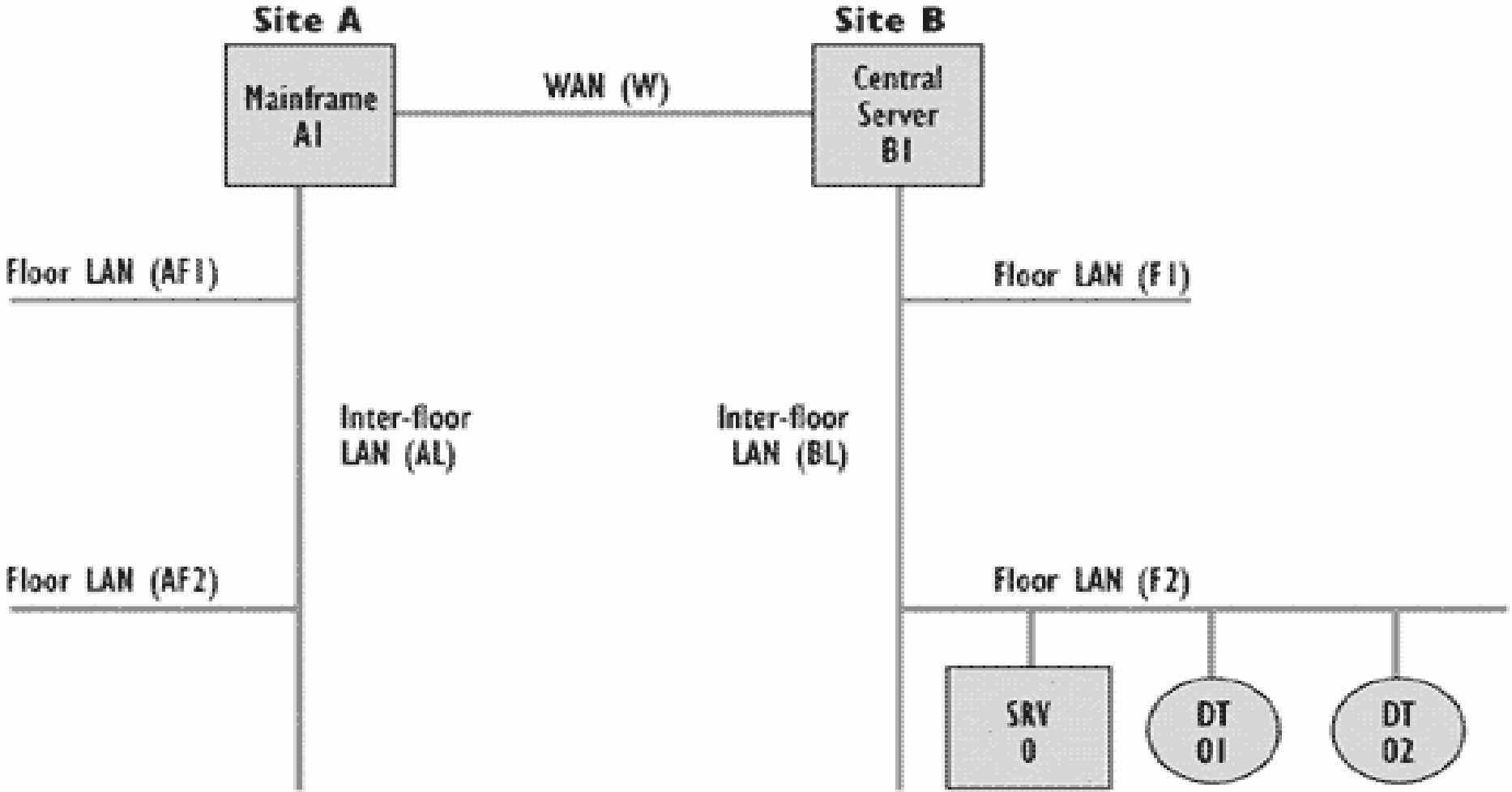
Configuration Item Type

- *Primary:*
  - *Hardware*
  - *Software*
  - *Documents*
- *Secondary:*
  - *Procedures*
  - *Organization Chart*
  - *People*
  - *SLA*
  - *Localization*
  - *Contracts*
  - *Incidents*
  - *Problems*
  - *Release*
  - *Change Managment*
  - *Reports*
  - *…*

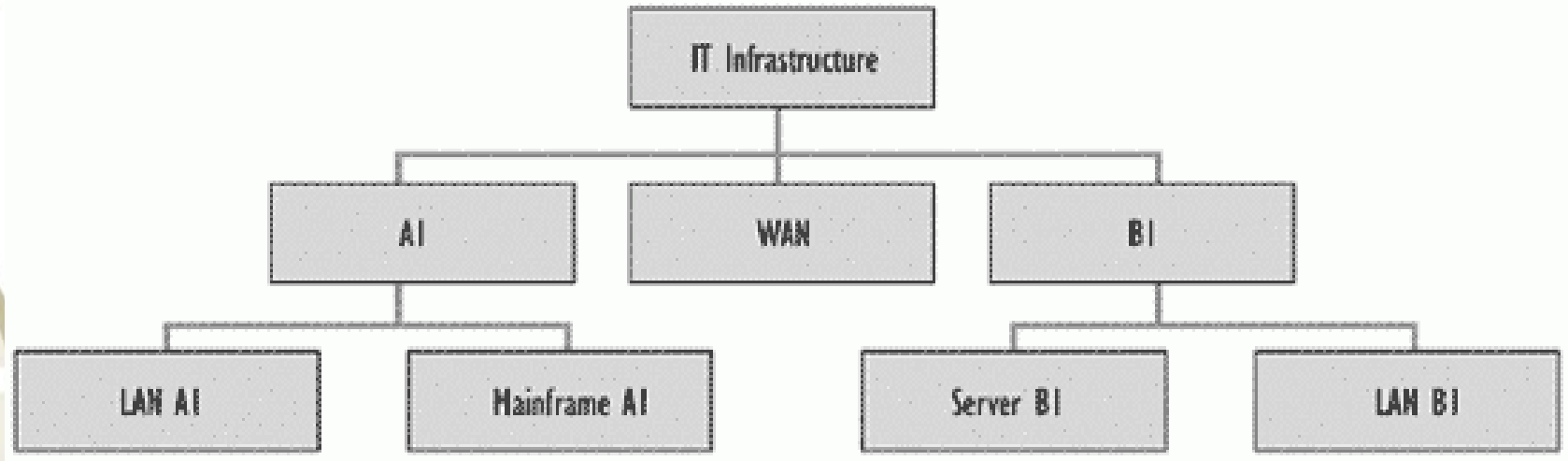
Structure and CI Level (Example 1)



Structure and CI Level (Example 2)



Structure and CI Level (Example 3)



Principal Control Activities

- Record new CIs
- Update CI
- Protect and ensure information reliability, confidentiality integrity and accessibility
- Control licenses
- Periodic and automatic load
- Backup and Archive

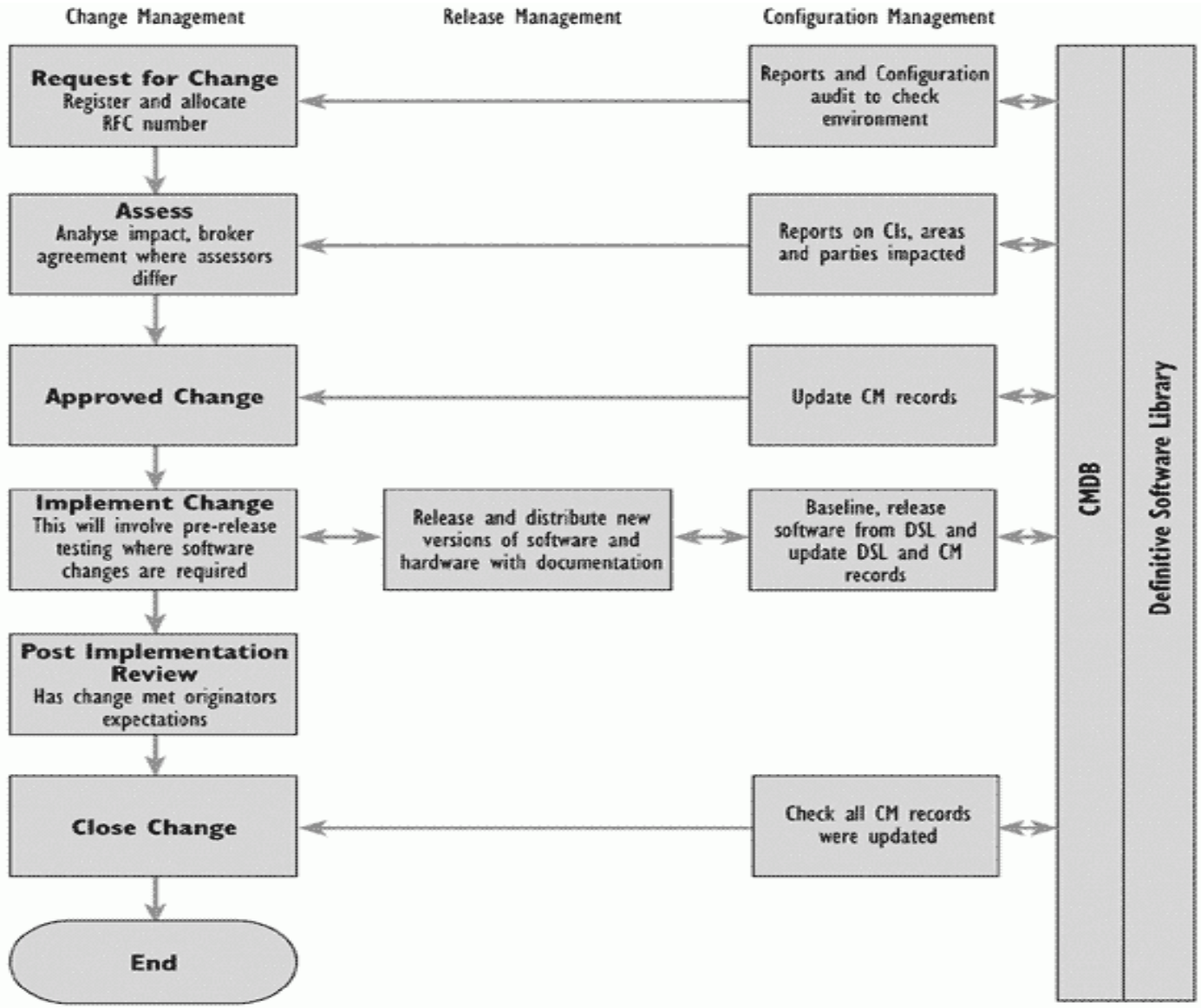
Principal Status Accounting Activities

- Manage CI life cycles
- Ensure history and traces
- Baseline
- Look after CIs, Problems, Changes, etc.

Principal Verification and Audit Activities

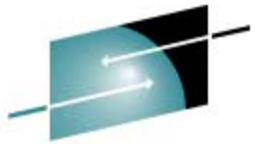
- Version and Changes
- Ensure Consistency
- Detect deviations
- Audits
- Verify CMDB Tools conformance

Close Relationship with Change & Release Processes



Key Success Factors

- Understand CMDB User requirements
- A CI Level adapted and simple
- Strong integration with other processes
- Automate as much as possible to minimize bureaucratic activities
- Robust Communication Plan
- Strong Support from Executive and Senior Management
- Have clear roles and responsibilities
- Realistic Forward Schedule
- Flexible CMDB Tool



Discussion