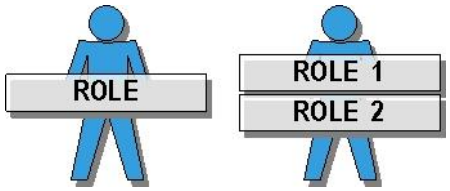
An Architecture for IT Architectural Roles

2007.03.26



IT Roles



- A Role is a part played by a person and includes a sphere of activity and a set of key responsibilities and deliverables.
  - Roles and people are not equivalent. A single person can play multiple roles and *[rarely]* multiple people can share a single instance of a role.
    - Although roles and people are not equivalent, in some cases, a single role is substantial and ongoing and consumes most or all of a single person's time.
  - IT roles are an outgrowth of the architectures, processes, and organizations in and around the IT environment.
    - To understand a role requires more than a role definition and list of responsibilities. It also requires understanding the context that gives the role its meaning.

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I. IT Architecture Model, Asset-Groups, and Infrastructure Services

II. Asset-Group and Infrastructure Service Roles

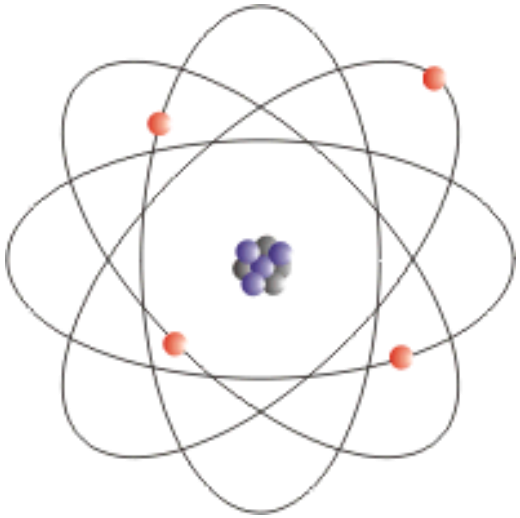
III. Business Processes, Solutions, and Solution Projects

IV. Solution Project Roles



Assets: the Basic Building Blocks of IT Architecture

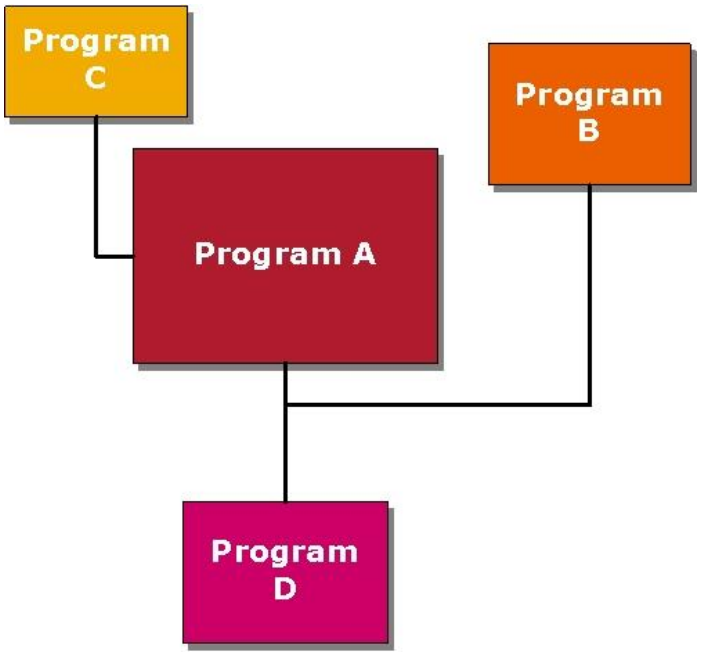
- The atomic unit of structure in a large IT organization's architecture is the Asset.
- Assets are grouped together to form Platforms, which in turn form Domains and Enterprises.
- The "asset" concept is made up of Applications and Instances.



Applications, Instances, and Assets

Applications

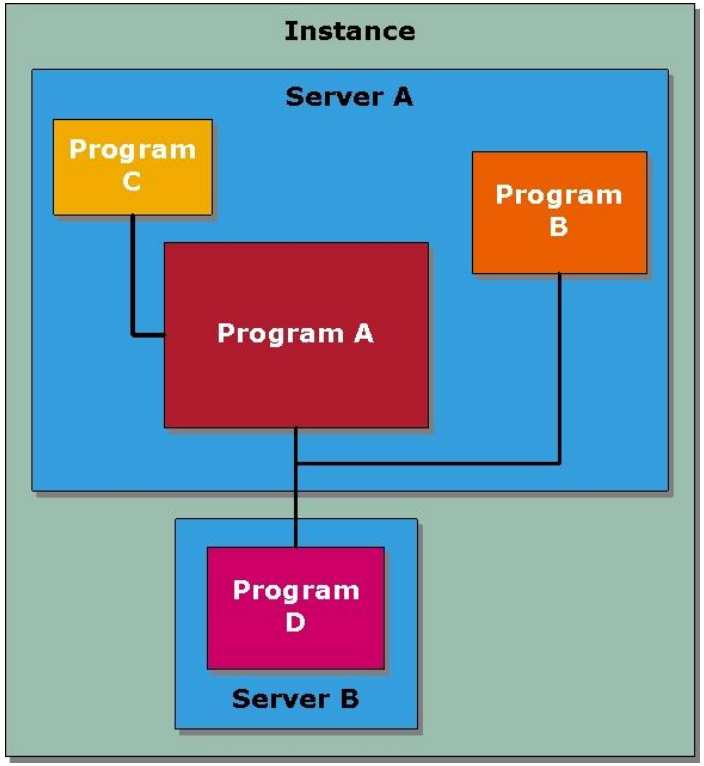
- An Application is a small group of mutually supporting computer programs that work together to provide a functionally cohesive set of IT capabilities.
  - Although an application may have only one program, usually it will have more than one.
  - Often, an application is made up of one major or anchor program and one or more smaller satellite and utility programs.
  - Each program is built up from a technology stack, some layers of which may be shared by more than one program.



Applications, Instances, and Assets

Instances

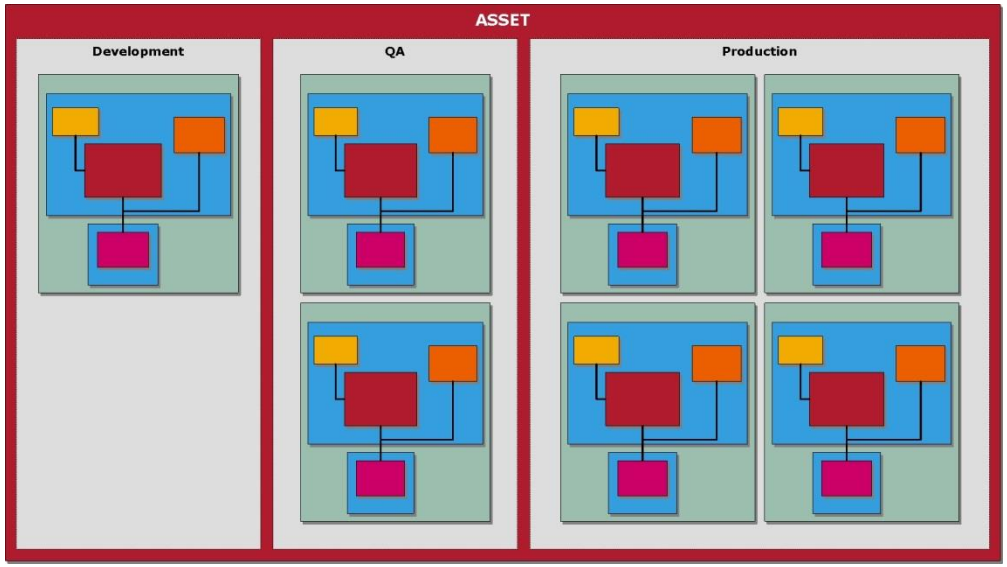
- An Instance is a single deployed and run-able copy of an application.
  - Frequently, the individual programs that comprise an application are deployed across multiple servers.



Applications, Instances, and Assets

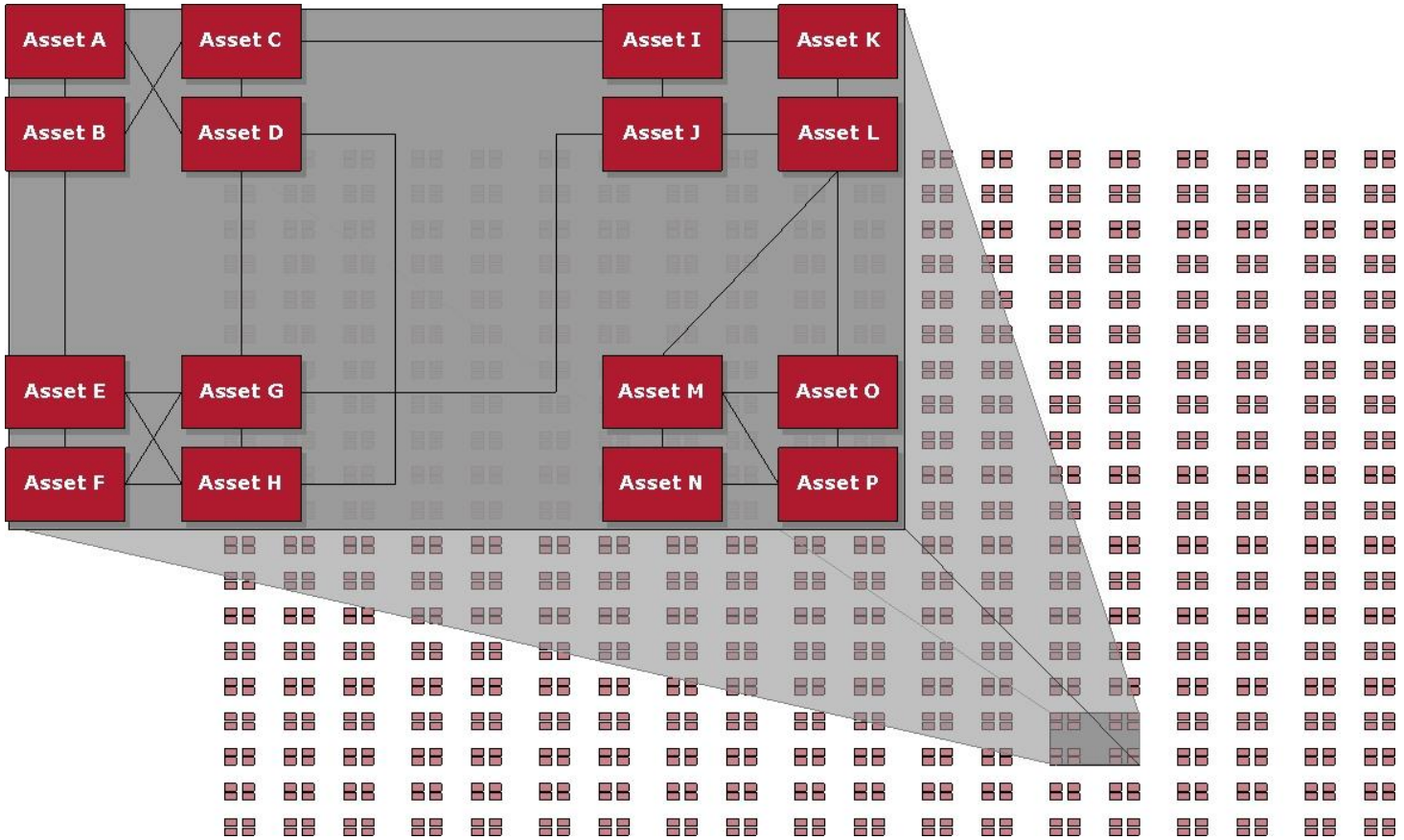
Assets

- An Asset is made up of all the Instances of an Application.
  - Multiple instances are typically deployed into different environments such as development, QA, and production with production being the most important to the IT architecture.
  - All the intellectual capital, documentation, supporting tools, and information related to the application is considered part of the asset.
  - It is common in most IT organizations to have a core team of people more or less exclusively dedicated to an asset.



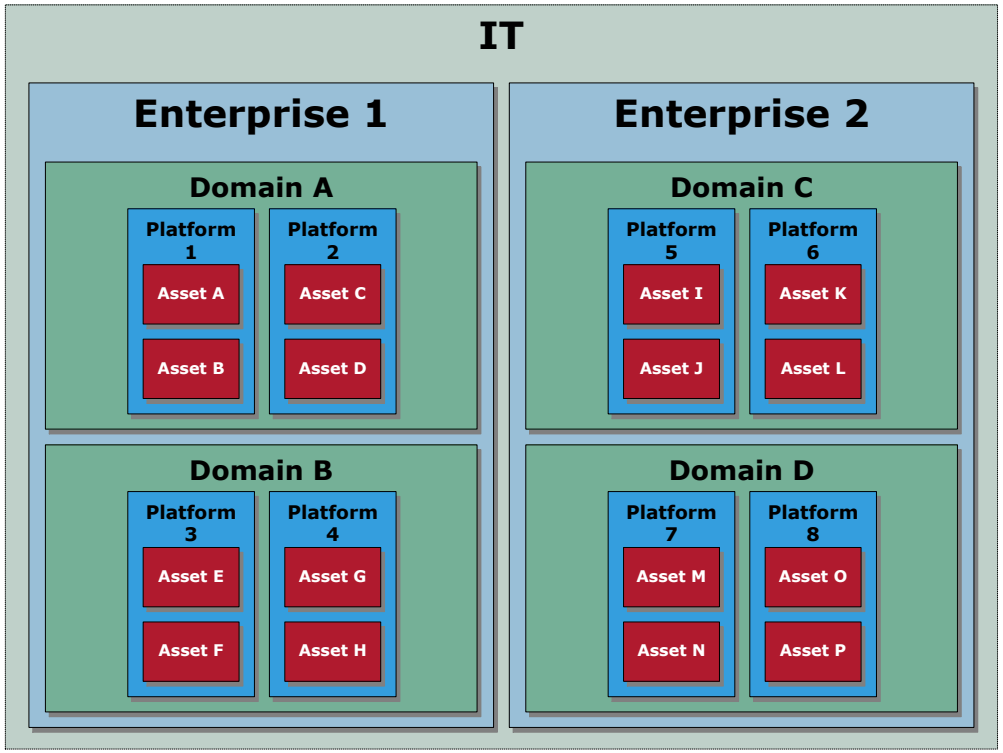
Complex IT Environments

- A large corporate IT environment is an extremely complex network of thousands of interconnected assets.



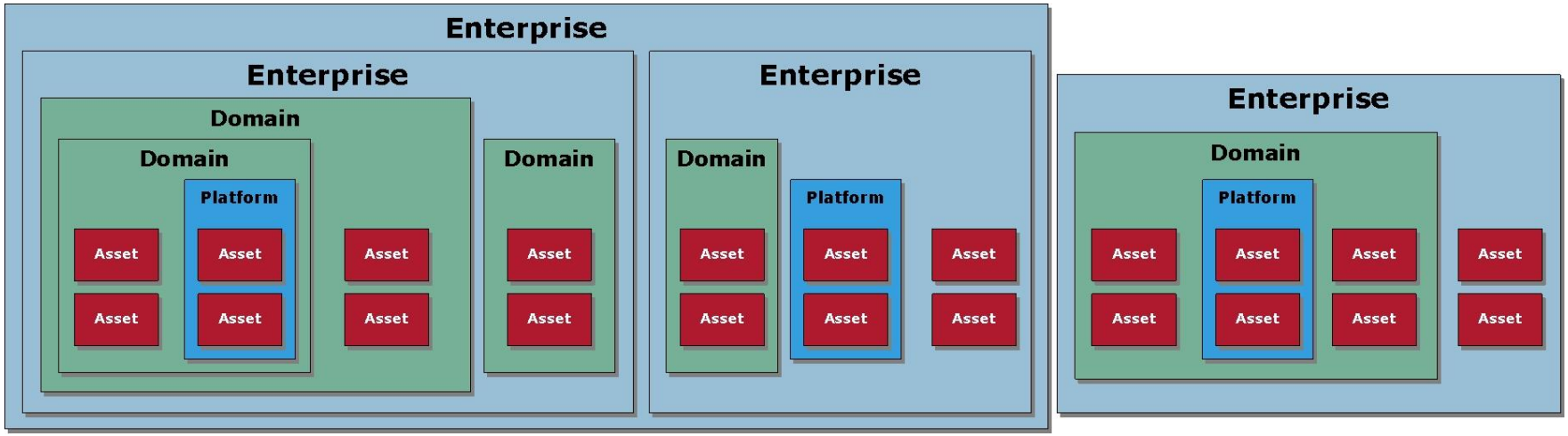
Asset-Groups

- To manage the complexity, large IT organizations use Asset-Groups -- a hierarchical scheme in which it groups assets into Platforms, which are grouped into Domains, which are grouped into Enterprises.



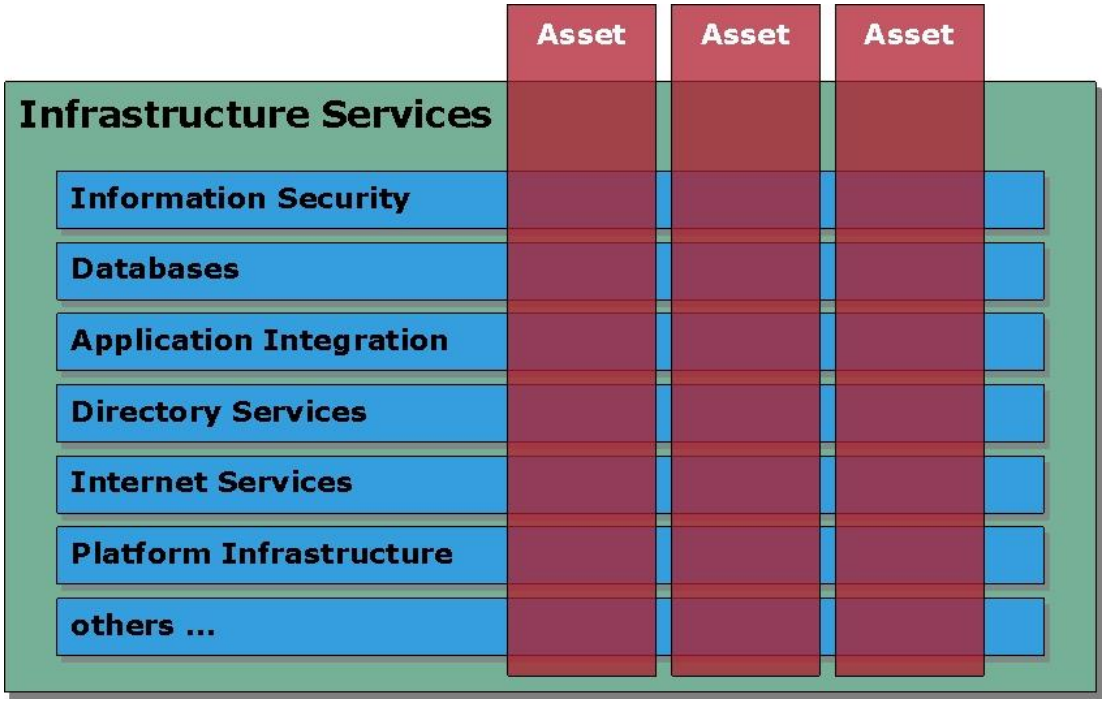
Levels of Asset-Group Organization are Flexible

- Platforms are optional.
- Domains are optional.
- There can be multiple nested levels of domains.
- There can be multiple nested levels of enterprises.



Infrastructure Services

- In addition to Asset-Groups, the an IT architecture includes a number of common “horizontals” known as Infrastructure Services. These exist to support the development and the integration of multiple assets and are managed fairly independently within the IT function.



I. IT Architecture Model, Asset-Groups, and Infrastructure Services

II. Asset-Group and Infrastructure Service Roles

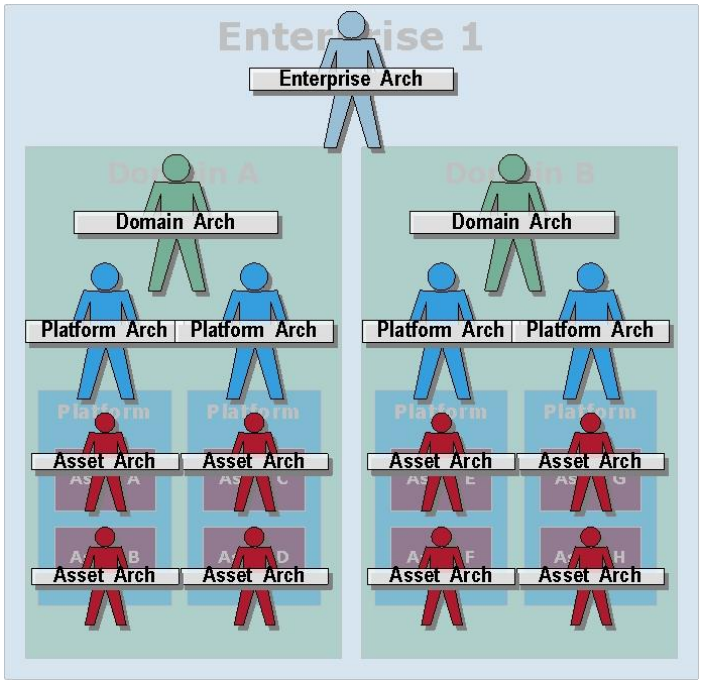
III. Business Processes, Solutions, and Solution Projects

IV. Solution Project Roles



Asset-Group Architect Roles

- Each level of asset-group organization defines a corresponding Architect role.
  - Each asset has somebody serving in the role of an Asset Architect.
    - (this role is usually part of the "Technical Lead" role)
  - Each platform has somebody serving in the role of a Platform Architect.
  - Each domain has somebody serving in the role of a Domain Architect.
  - Each enterprise has somebody serving in the role of an Enterprise Architect.
- Asset-group architect roles are stable over time. As long as the asset, platform, domain, or enterprise exists, the corresponding architect role exists.
  - These roles are not tied to projects or the lifespan of projects.

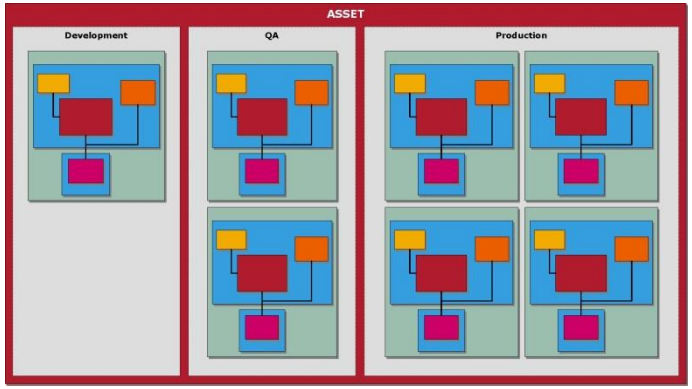


Asset Architect Role



Summary

- Asset Architects (Technical Leads) maintain both a big-picture view and a depth of knowledge about an asset. They ensure that the asset fulfils its role within the larger IT architecture, design and direct its technical evolution, and represent the asset's technical capabilities to stakeholders.



Asset Architect Role



Key Responsibilities

- ensuring the asset's architecture can achieve its business and operational goals and metrics,
- planning, designing, and directing the asset's architectural evolution,
- leading the asset's Developers to get changes to the asset architecture implemented,
- ensuring the asset's architectural integrity,
- aligning and coordinating the asset's architecture with other asset, platform, domain, and enterprise architectures,
- providing a depth of knowledge about the asset's industry niche, functional capabilities, and design to the asset's stakeholders,
- ensuring that the asset maintains the appropriate level of compliance with all applicable principles, policies, standards, and guidelines,
- leading the establishment of any additional asset-specific principles, policies, standards, and guidelines for Developers to apply to the asset,
- translating requirements on the asset into technical capabilities of the asset,
- acting as the asset's lead designer for projects,
- leading and coaching the asset's Developers,
- managing the asset's technical documentation.



Platform Architect Role

Summary

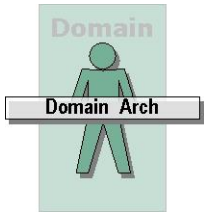
- Platform Architects maintain a big-picture view of a platform and a depth of knowledge about the general functional area collectively served by the platform's assets. They ensure that the platform's assets collectively fulfill the platform's role within the larger IT architecture, plan and direct the platform's technical evolution, and represent the platform's technical capabilities to stakeholders.



Platform Architect Role

Key Responsibilities

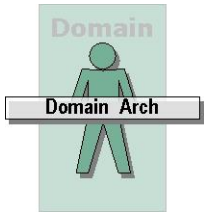
- ensuring the platform's architecture can achieve its business and operational goals and metrics,
- planning and directing the platform's architectural evolution,
- leading the Architects within the platform to get changes to the platform architecture implemented,
- ensuring the platform's architectural integrity,
- aligning and coordinating the platform's architecture with other platform, domain, and enterprise architectures,
- providing a depth of knowledge about the platform's industry niche, functional capabilities, and design to the platform's stakeholders,
- ensuring that the platform maintains the appropriate level of compliance with all applicable principles, policies, standards, and guidelines,
- leading the establishment of any additional platform-specific principles, policies, standards, and guidelines for Developers to apply to the platform's assets,
- translating requirements on the platform into technical capabilities of the platform,
- leading and coaching the platform's Asset Architects,
- managing the platform's technical documentation.



Domain Architect Role

Summary

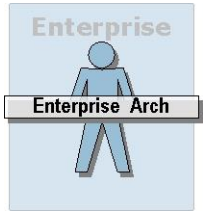
- Domain Architects maintain a big-picture view of a domain and a depth of knowledge about the general functional area collectively served by the domain's assets. They ensure that the domain's assets collectively fulfill the domain's role within the larger IT architecture, plan and direct the domain's technical evolution, and represent the domain's technical capabilities to stakeholders.



Domain Architect Role

Key Responsibilities

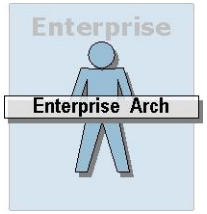
- ensuring the domain's architecture can achieve its business and operational goals and metrics,
- planning and directing the domain's architectural evolution,
- leading the Architects within the domain to get changes to the domain architecture implemented,
- ensuring the domain's architectural integrity,
- aligning and coordinating the domain's architecture with other platform, domain, and enterprise architectures,
- providing a depth of knowledge about the domain's industry niche, functional capabilities, and design to the domain's stakeholders,
- ensuring that the domain maintains the appropriate level of compliance with all applicable principles, policies, standards, and guidelines,
- leading the establishment of any additional domain-specific principles, policies, standards, and guidelines for Developers to apply to the domain's assets,
- translating requirements on the domain into technical capabilities of the domain,
- leading and coaching the domain's Platform and Asset Architects,
- managing the domain's technical documentation.



Enterprise Architect Role

Summary

- Enterprise Architects maintain a big-picture view of an enterprise and a depth of knowledge about the general functional area collectively served by the enterprise's assets. They ensure that the enterprise's assets collectively fulfill the enterprise's role within the larger IT architecture, plan and direct the enterprise's technical evolution, and represent the enterprise's technical capabilities to stakeholders.



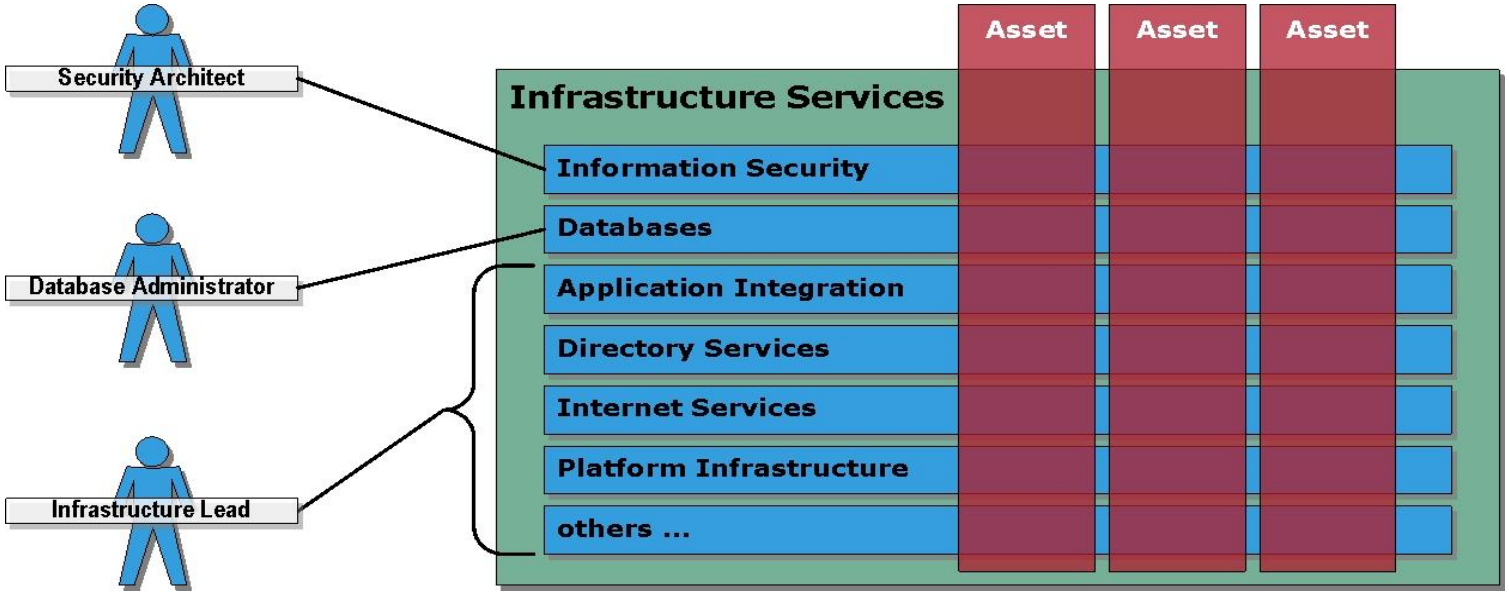
Enterprise Architect Role

Key Responsibilities

- ensuring the enterprise's architecture can achieve its business and operational goals and metrics,
- planning and directing the enterprise's architectural evolution,
- leading the Architects within the enterprise to get changes to the enterprise architecture implemented,
- ensuring the enterprise's architectural integrity,
- aligning and coordinating the enterprise's architecture with other enterprise architectures,
- collaborating with other Enterprise Architects to create and evolve an integrated overall enterprise architecture,
- providing a depth of knowledge about the enterprise's industry niche, functional capabilities, and design to the enterprise's stakeholders,
- ensuring that the enterprise maintains the appropriate level of compliance with all applicable principles, policies, standards, and guidelines,
- leading the establishment of any additional enterprise-specific principles, policies, standards, and guidelines for Developers to apply to the enterprise's assets,
- participating in the strategic planning process by translating requirements on the enterprise into technical capabilities of the enterprise,
- leading and coaching the enterprise's Domain and Platform Architects,
- managing the enterprise's technical documentation.

Infrastructure Service Roles

- Each infrastructure service area defines various roles including:
  - The Security Architect role provides consulting and security assessment services, helps address security vulnerabilities, provides guidance toward compliance with information security policies and standards.
  - The Database Administrator role ensures efficient utilization of database services, provides performance analysis and tuning, data integrity verification, backup, access control definition, and some database design.
  - The Infrastructure Lead role (sometimes called an "Infrastructure Architect") provides infrastructure design services and coordinates delivery of core infrastructure services.



I. IT Architecture Model, Asset-Groups, and Infrastructure Services

II. Asset-Group and Infrastructure Service Roles

III. Business Processes, Solutions, and Solution Projects

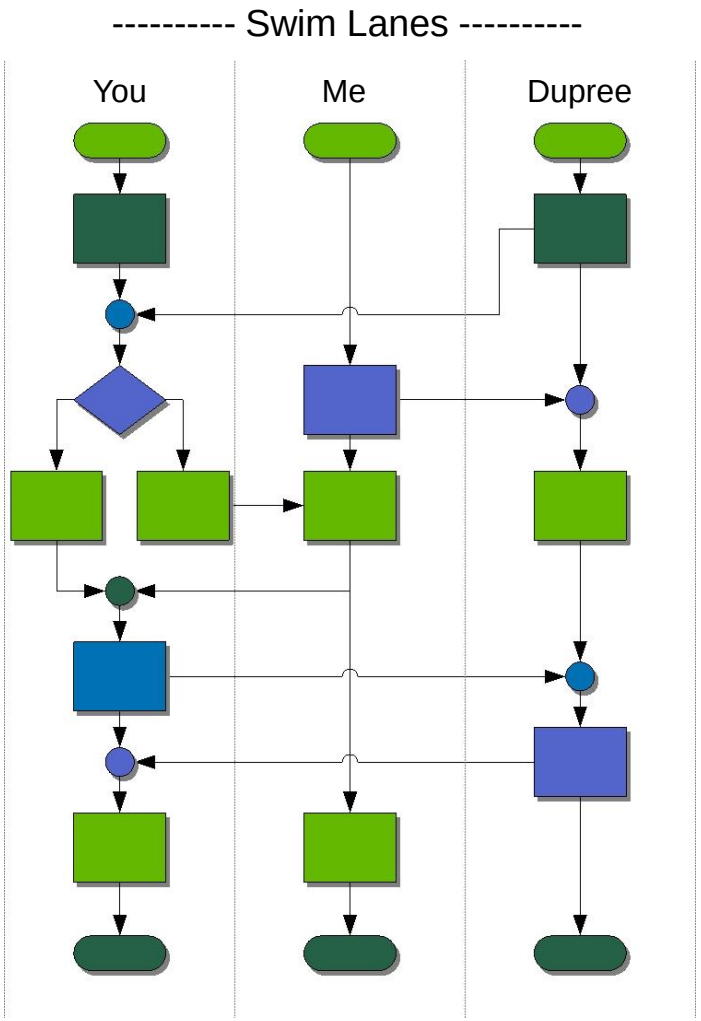
IV. Solution Project Roles



Business Processes, Solutions, and Solution Projects

Business Processes

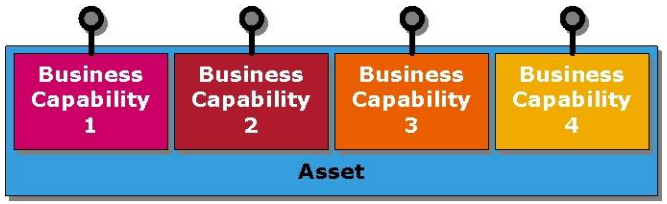
- A Business Process is a linked set of manual and/or automated activities that a business performs as part of internal operations and of producing and delivering its products and services.
  - A high-level business process can be decomposed into many levels of sub-processes.

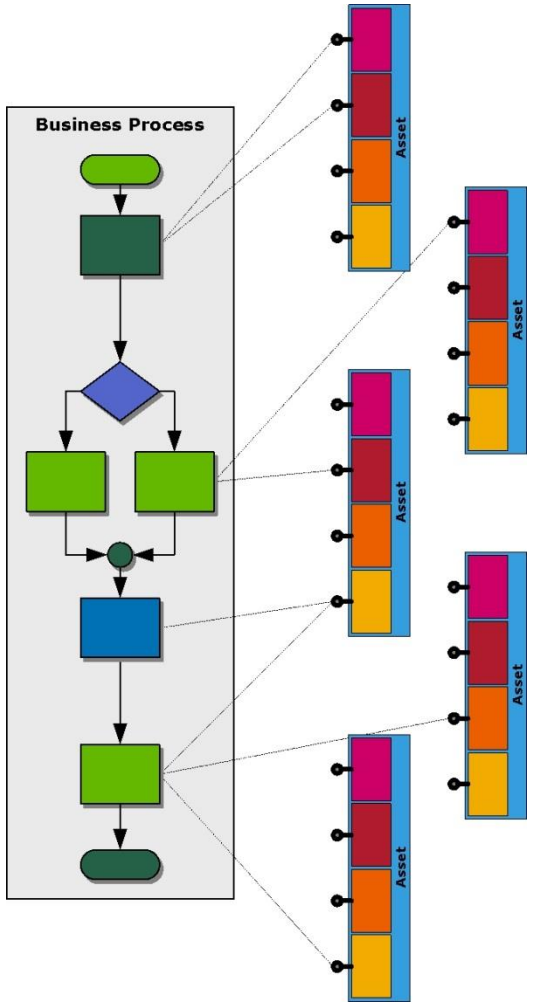


Business Processes, Solutions, and Solution Projects

Business Perspective on an Asset

- The business view of an asset is that it is a container that exposes a set of tightly integrated business capabilities.
- Businesses use the capabilities provided by assets to automate the steps of a business process.
- A single business process may use selected capabilities from several assets.

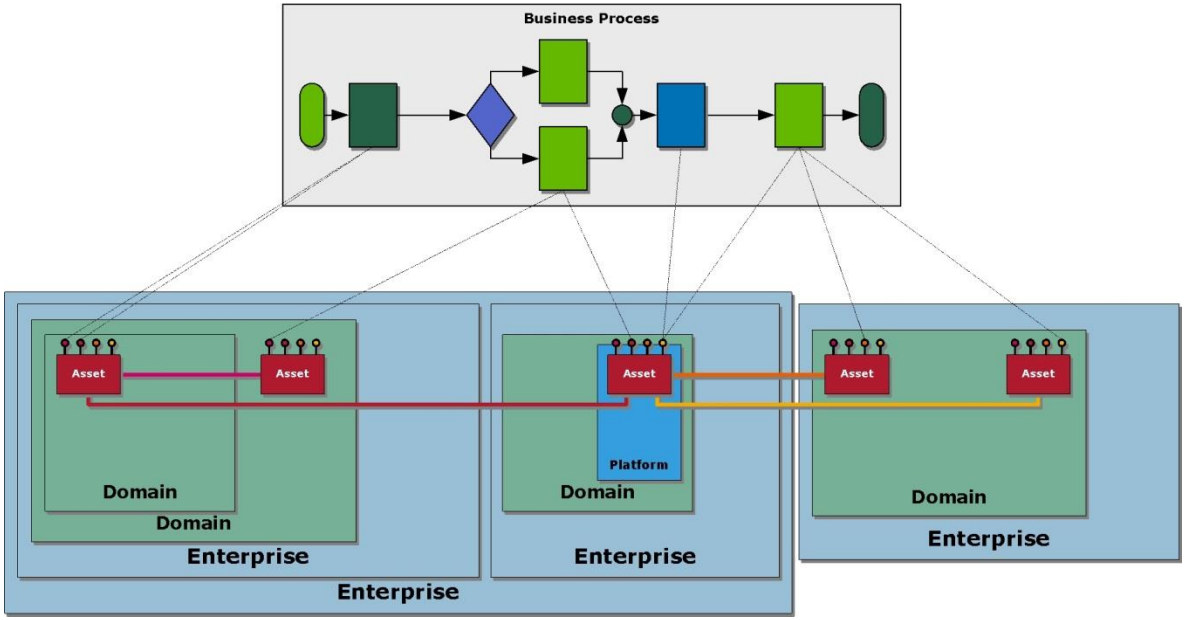




Business Processes, Solutions, and Solution Projects

Solutions

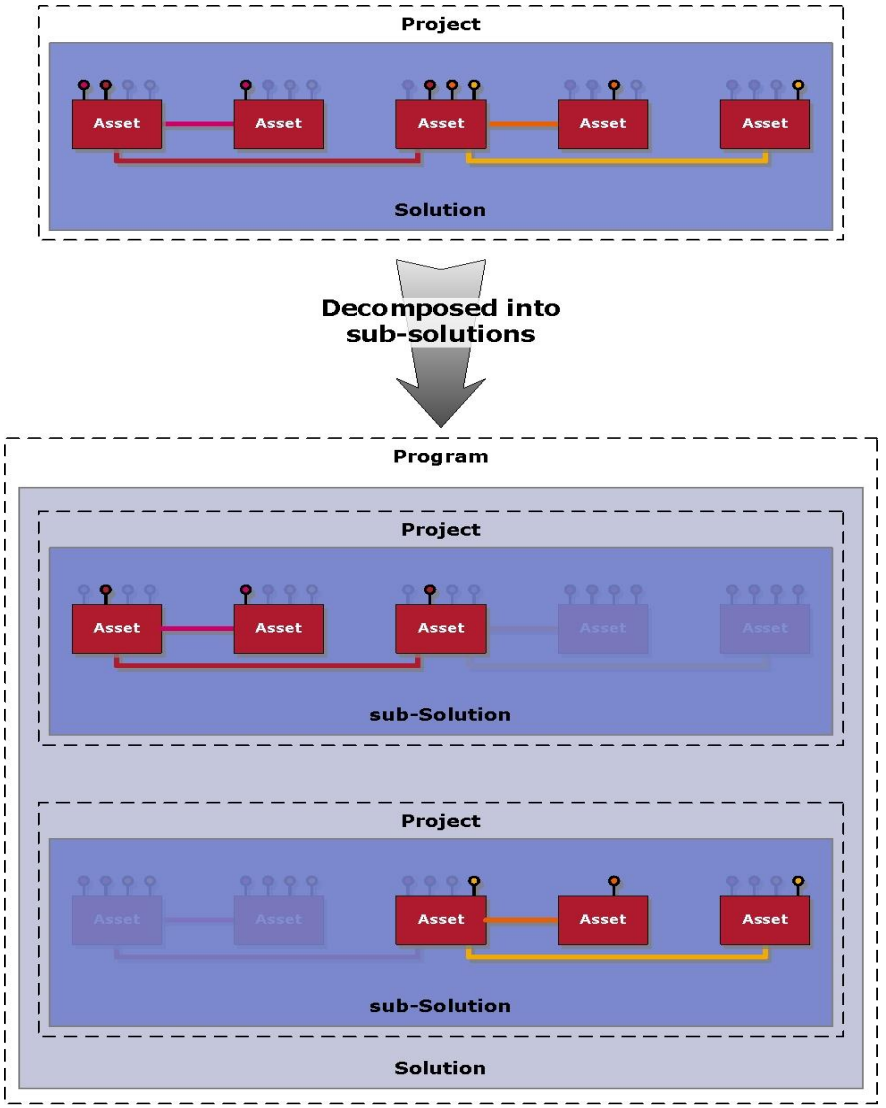
- A Solution is a set of capabilities from one or more assets that automate one or more related steps of a business process.
  - The capabilities involved in providing a solution are not necessarily confined to any single asset, platform, domain, or enterprise.



Business Processes, Solutions, and Solution Projects

Solution Projects

- A Solution Project is a process with a beginning and an ending that develops a solution.
  - The project can span platforms, domains, or enterprises in order to involve all the solution's assets and their interconnections.
- If a solution is too large for one project leadership team, it can be broken down into sub-solutions, each with its own project leadership team.
  - Decomposed projects like this are usually called "Programs".



I. HP’s IT Architecture Model, Asset-Groups, and Infrastructure Services

II. Asset-Group and Infrastructure Service Roles

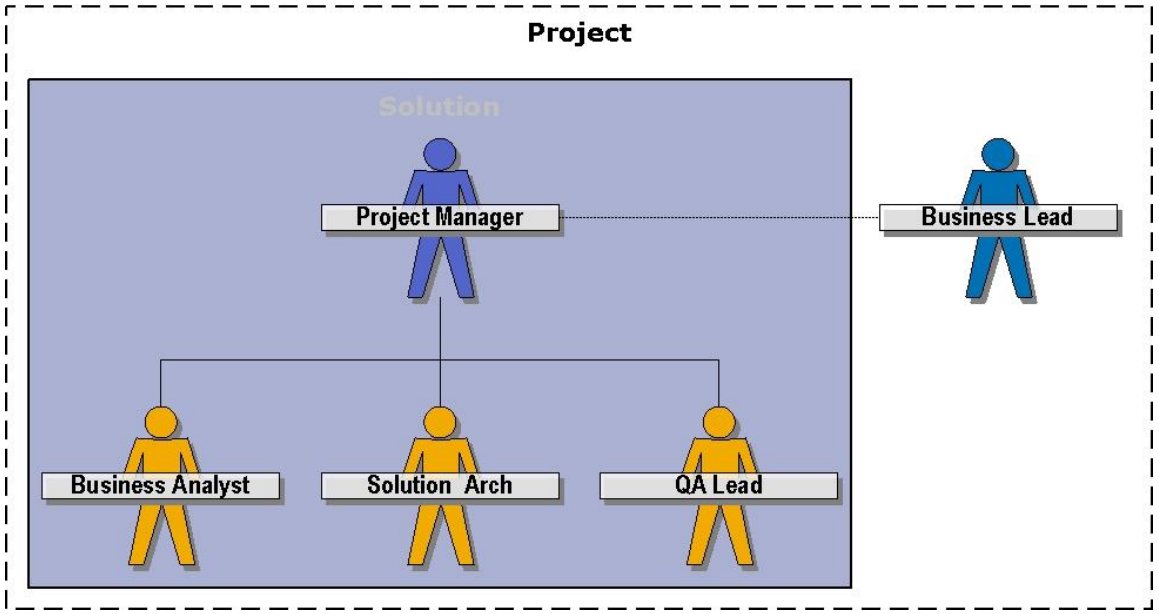
III. Business Processes, Solutions, and Solution Projects

IV. Solution Project Roles



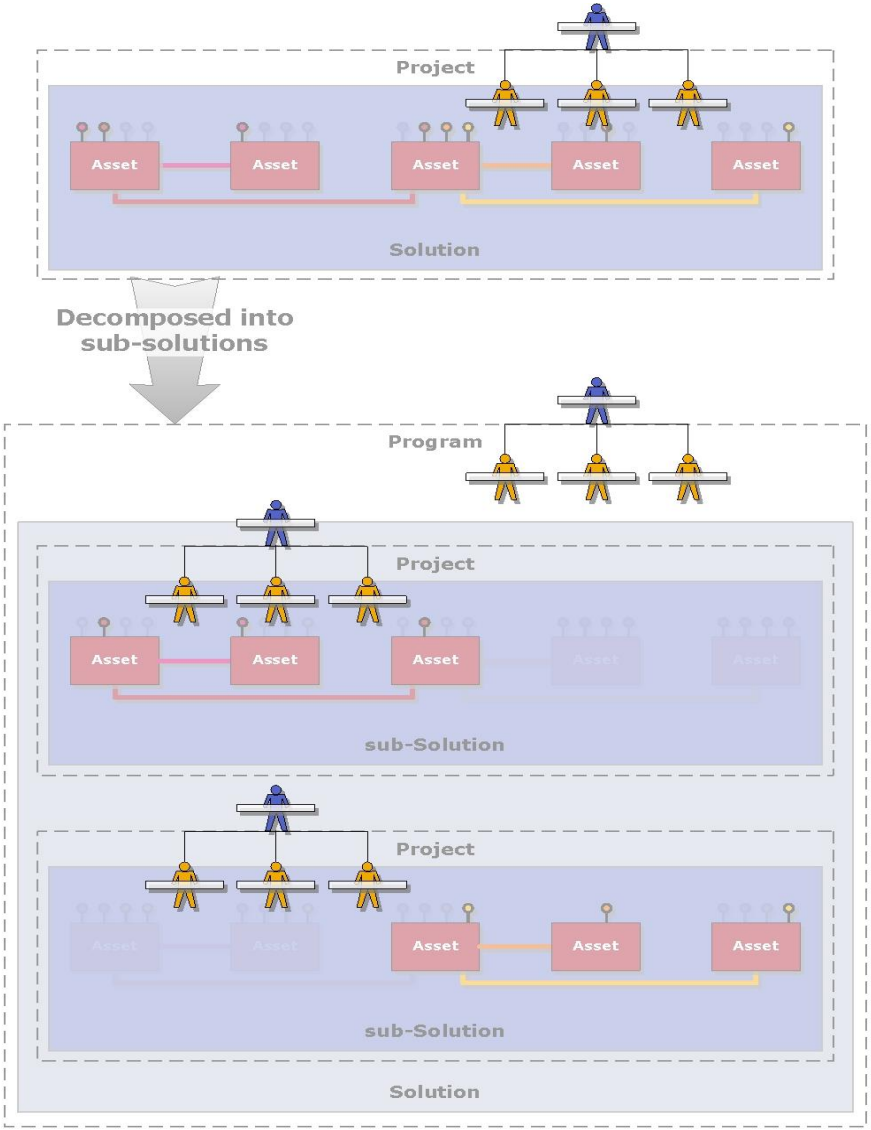
Solution Project Leadership Roles

- Solution project leadership roles have responsibility for the solution's entire scope.
- The leadership team is lead by the Project Manager role and includes the Business Analyst, Solution Architect, and QA Lead roles.
  - The business that requires the solution is represented by a Business Lead role that is a peer to the Project Manager role. The Business Lead role has also been called a "Product Manager".



Solution Project Leadership Roles

- Each solution and sub-solution should have somebody serving in each of the solution project leadership roles.
- Solution project leadership roles are temporary. The roles exists only while the project to develop the corresponding solution exists.
  - These roles are tied to projects and the lifespan of projects.





Solution Architect Role

Summary

- Solution Architects maintain both a big-picture view and a depth of knowledge about an end-to-end solution. They evaluate the technical feasibility of implementing the solution. They lead the solution's design and ensure that the solution architecture aligns with the asset-group architecture plans.



Solution Architect Role

Key Responsibilities

- advising the solution's Project Manager on technical issues,
- evaluating the feasibility of implementing the solution,
- ensuring the solution's architecture can achieve its business and operational goals and metrics,
- planning, designing, and directing the solution's architecture and design,
- leading the solution's design reviews,
- leading the solution's Developers to get the solution architecture implemented,
- ensuring the solution's architectural integrity (complete, sound, stable),
- aligning and coordinating the solution's architecture with all relevant asset, platform, domain, and enterprise architectures,
- ensuring that the solution maintains the appropriate level of compliance with all applicable principles, policies, standards, and guidelines,
- leading the establishment of any additional solution-specific principles, policies, standards, and guidelines for Developers to apply to the solution,
- translating requirements on the solution into technical capabilities of the solution,
- managing the solution's technical documentation.

Examples, Illustrations, Analogies, and Amplifications



Atoms and Assets

The asset is to IT architecture what the atom is to chemistry.

Atom : Chemistry	Asset : IT Architecture
Chemistry is the science of matter at the atomic to molecular scale.	IT Architecture is the planning and design of systems at the asset to enterprise scale.
An atom is the smallest particle of a chemical element that retains its chemical properties.	An asset is the smallest component of an architecture that provides a cohesive set of business or IT capabilities.
An atom is composed of subatomic particles – electrons, protons and neutrons.	An asset is composed of sub-asset components – instances.
Protons and neutrons themselves consist of still smaller particles called quarks.	Instances consist of applications which themselves consist of smaller components called computer programs.

Applications Are Made Up Of Programs

- Using HP as an example: Two of HP's Content Management Assets
  - The Concentra Asset includes these mutually supporting programs: TIE, Extractor, PM-Sync, Auto Loader, Concentra Core, XMetaL, and others.
  - The Cheetah Asset includes these mutually supporting programs: Epic, Vasont, Saxon, Antenna House, Acrobat Distiller, and others.

Thousands of Assets

- Using HP as an example large IT environment:
  - In 2006, HP-IT owned approx. 7,000 assets.
  - Even after a massive consolidation and house-cleaning effort, in 2008 HP-IT still owned approx. 1,500 assets.

Partial Business Process Taxonomy

- A high-level business process can be decomposed into many levels of sub-processes. For Example:
  - (6) Manage and Support Customers
  - (6.4) Manage Customer Inquiries
  - (6.4.7) Suggest Products and Service
  - (6.4.7.3) Provide Product/Service Information
  - . . .

