Role of a Architect

Agenda

Day 1

Session 1: Introduction

Session 2: Role of a Architect

Session 3: Gathering Architectural requirements

Session 4: Defining and Documenting Architecture

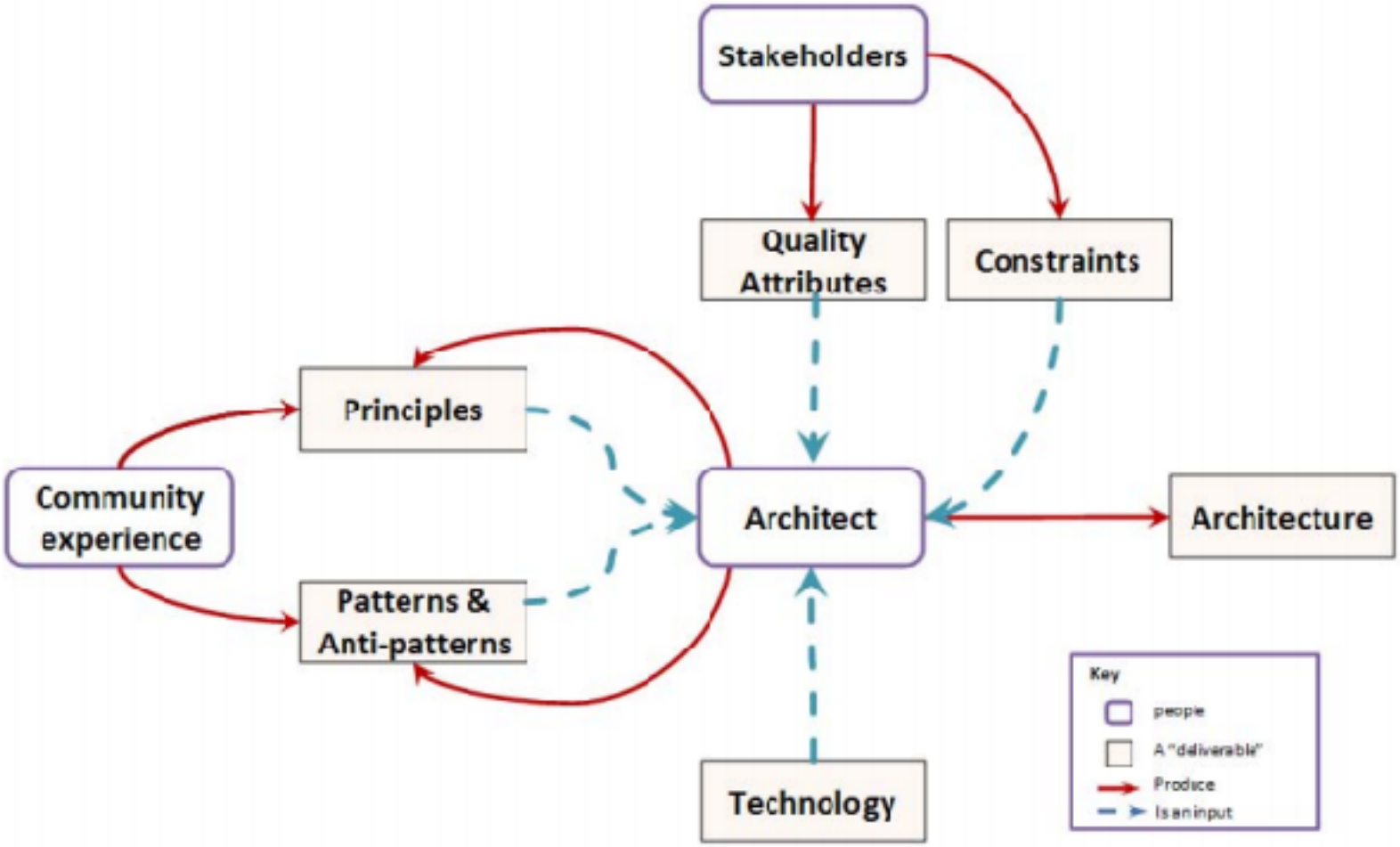
Day 2

Session 5: Architectural Styles

Session 6: Architectural Patterns

Session 7: Architectural Anti Patterns

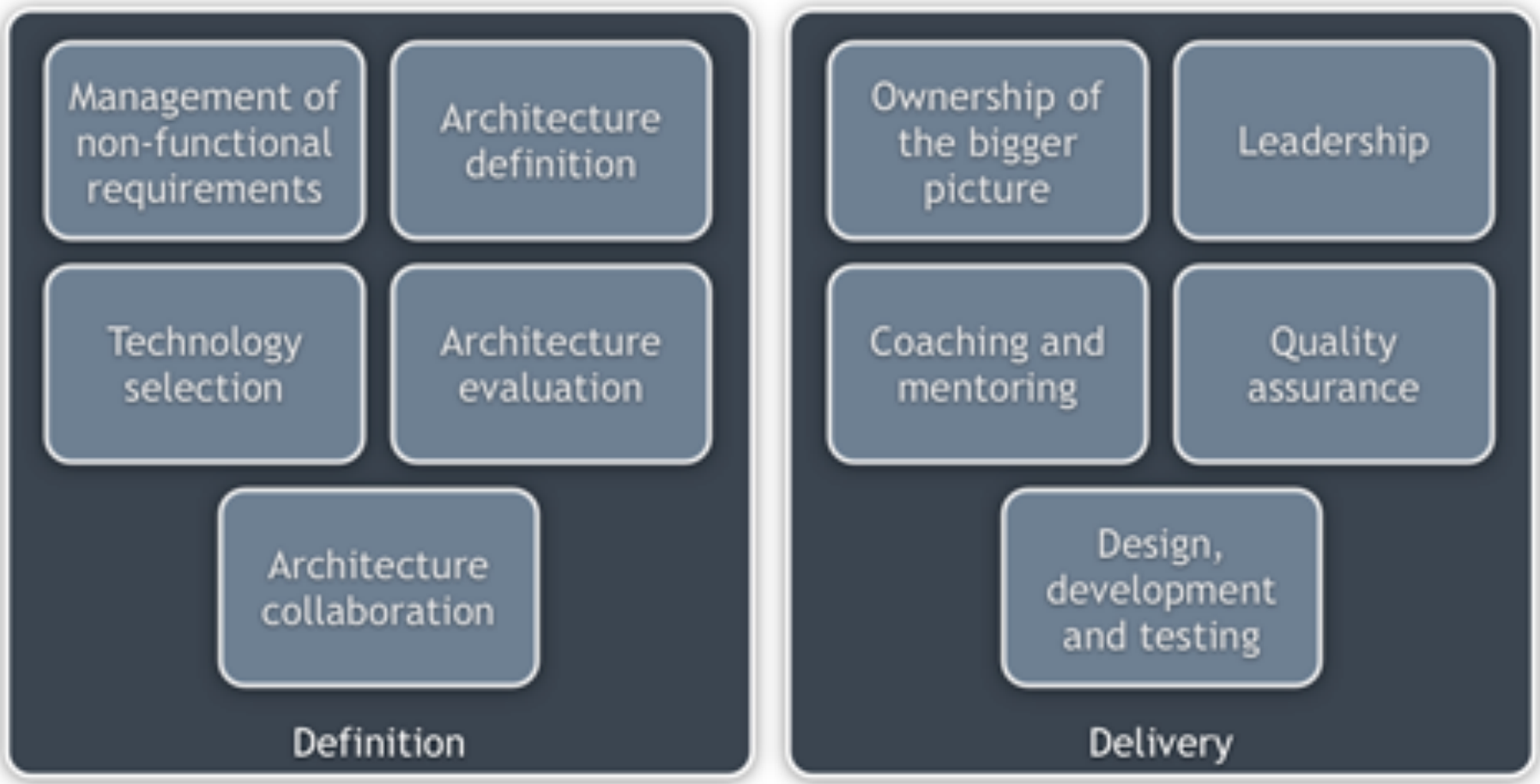
Session 8: Evaluating Architecture


Stakeholders
Quality Attributes
Constraints
Principles
Community experience
Architect
Architecture
Patterns & Anti-patterns
Technology
Key
people
A "deliverable"
Produce
Is an input

“A software system’s architecture is the set of principal design decisions made about the system”

[Taylor et al.]

2 phases of architecture



Collect Non Functional Requirements

Are non functional
Requirements

Specific ?

Are non functional
Requirements

Measurable ?

Are non functional
Requirements

Achievable ?

Are non functional
Requirements

Testable ?

Need to be specific, measurable, achievable and testable

if we are going to satisfy them

Define Architecture

It is about introducing

structure, guidelines,

principles and leadership

Make Technology Selection

Are you confident the technology choices are the right ones

Architect should own

the technical risk *and*

the technology selection

Are you allowed to use

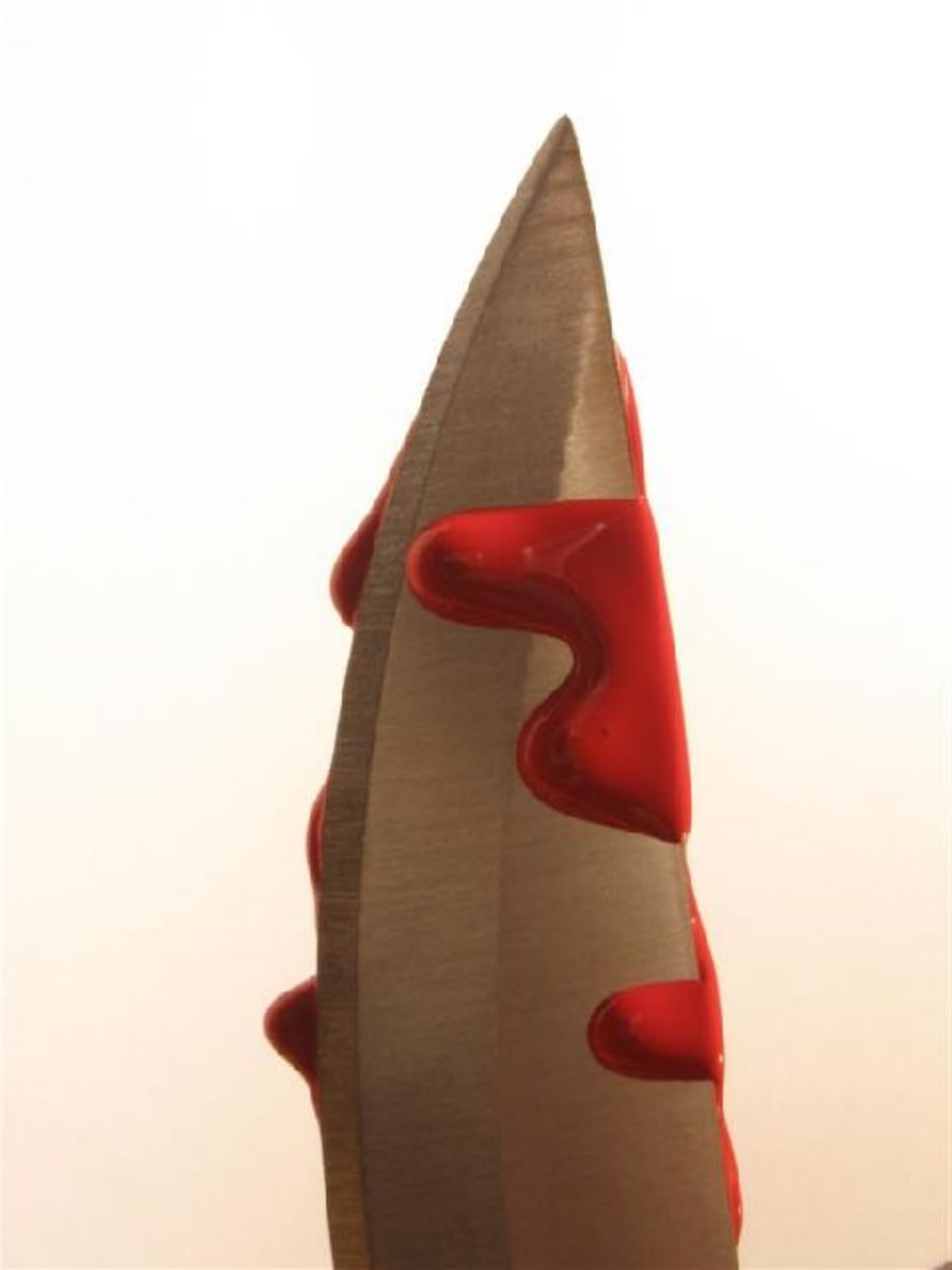
Open Source technology ?

Are you constrained by a list of

approved technologies ?

Are you going by

the Hype ?



Cost, licensing, vendor relationships, technology strategy, compatibility, interoperability, support, deployment, upgrade policies, end-user environments

Reduce risk where there

is high complexity

or uncertainty

Introduce risk where

there are benefits

Technology selection
is all about managing

risk

Evaluate Architecture

Will my

architecture work?

I don't always trust myself to get it right first time.

Like a good chef,

the architect **should**

taste what you are producing

Who takes ownership

of the architecture evaluation?

An architecture works if it satisfies

non-functional requirements

and provides a platform for

functional requirements

Architecture collaboration

the architecture you have defined should be understood by everybody involved with making it a reality.

take ownership of collaborating with the stakeholders and sharing the architectural vision

Ownership of the Architecture

An architecture is defined and then passed over to a development team

Software development is not a relay sport

Somebody needs to look after
the Architecture, evolving it
throughout the project

Leadership

the ability for an individual to

align the thoughts, motivations,

and actions of a group of people

towards a common goal

Includes taking

responsibility, providing

technical guidance, making

technical decisions

Coaching and mentoring

Enhance people's skills
and to help them improve
their own careers

Enhance both technical skills and Soft skills

Quality Assurance

it's more than just

doing code reviews

introduce standards and working practices

coding standards,
design principles and
source code analysis tools

Continuous integration, automated unit testing and code coverage tools

Design, development and testing

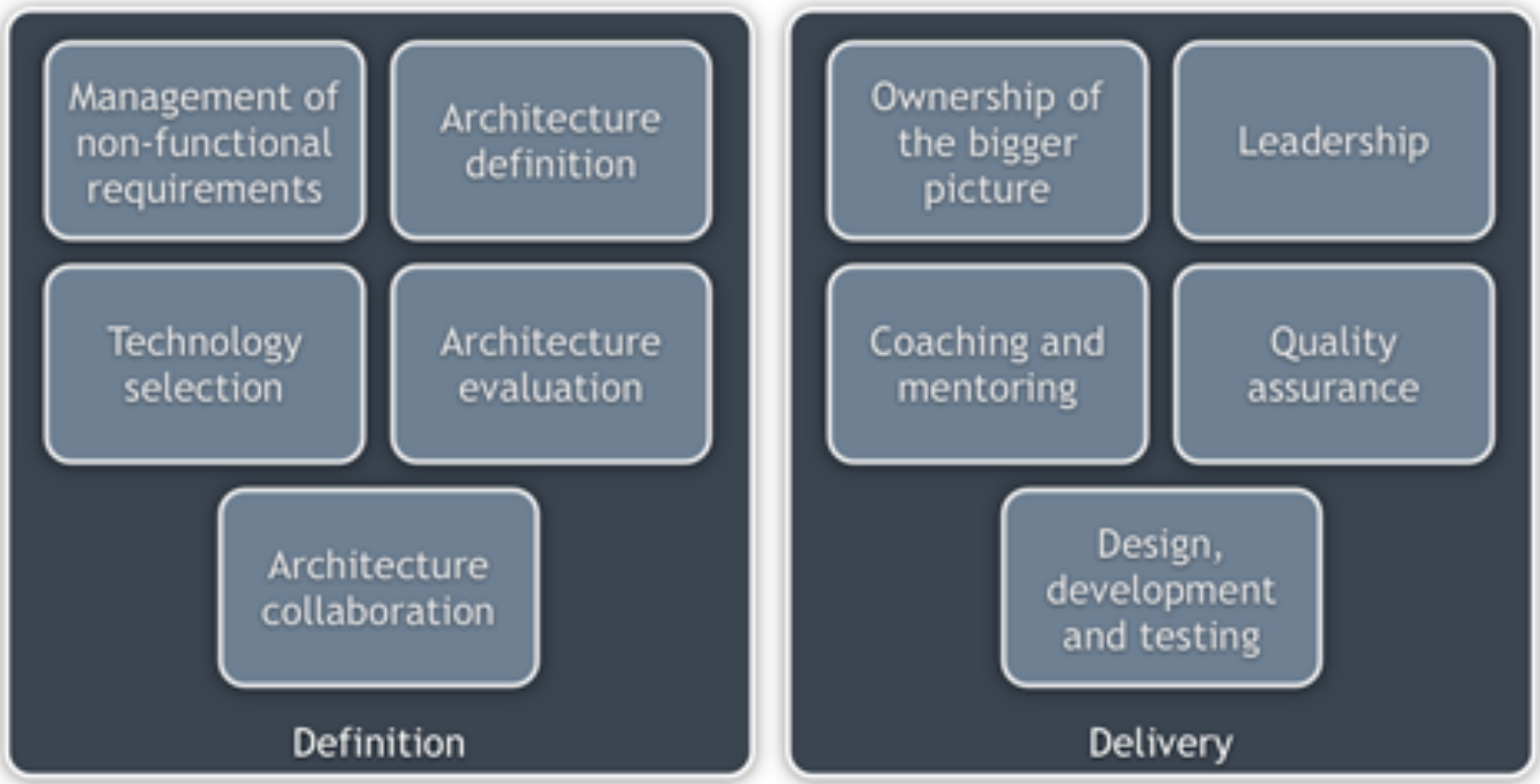
Architects Don’t Code

an architect that codes

is a more effective

and happier architect.

2 phases of architecture



Architecting a hut

If you are building a simple, single-user, nondistributed system, you might need no architects at all.

Architecting a house

Architecting a high rise

The Need of Architecture

The Winchester “Mystery” House

- The mansion contains 160 rooms, 40 bedrooms, 6 kitchens, 2 basements and 950 doors , 47 fireplaces, 10,000 windows, 17 chimneys .

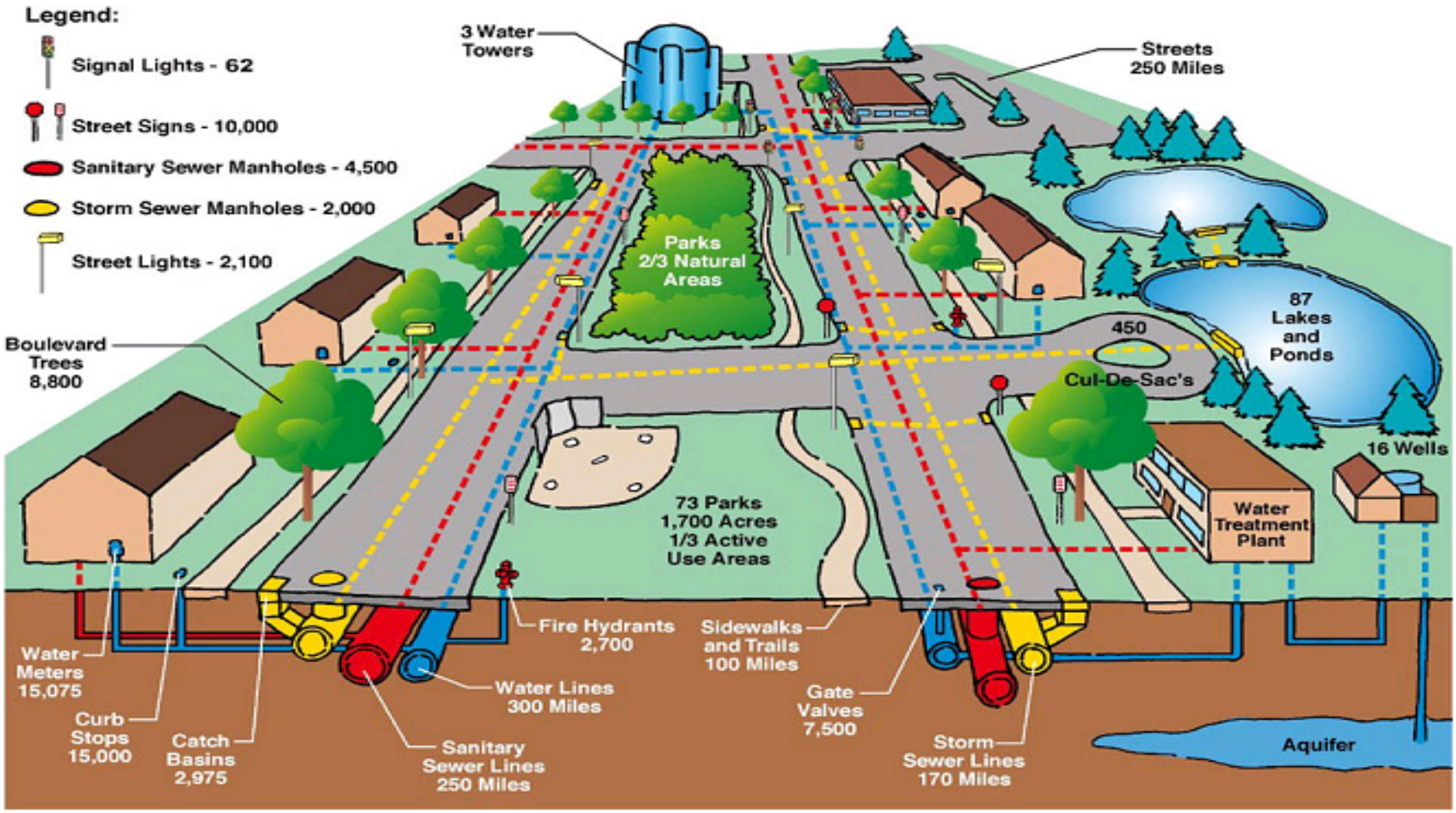
- Out of 950 doors, 65 of them open to blank walls, 13 staircases were built and abandoned and 24 skylights were installed into various floors.

Famous Words…

“It is a very humbling experience to make a multimillion-dollar mistake, but it is also very memorable….”

(Fred Brooks - “Mythical Man-Month” p.47)

City Planner perspective

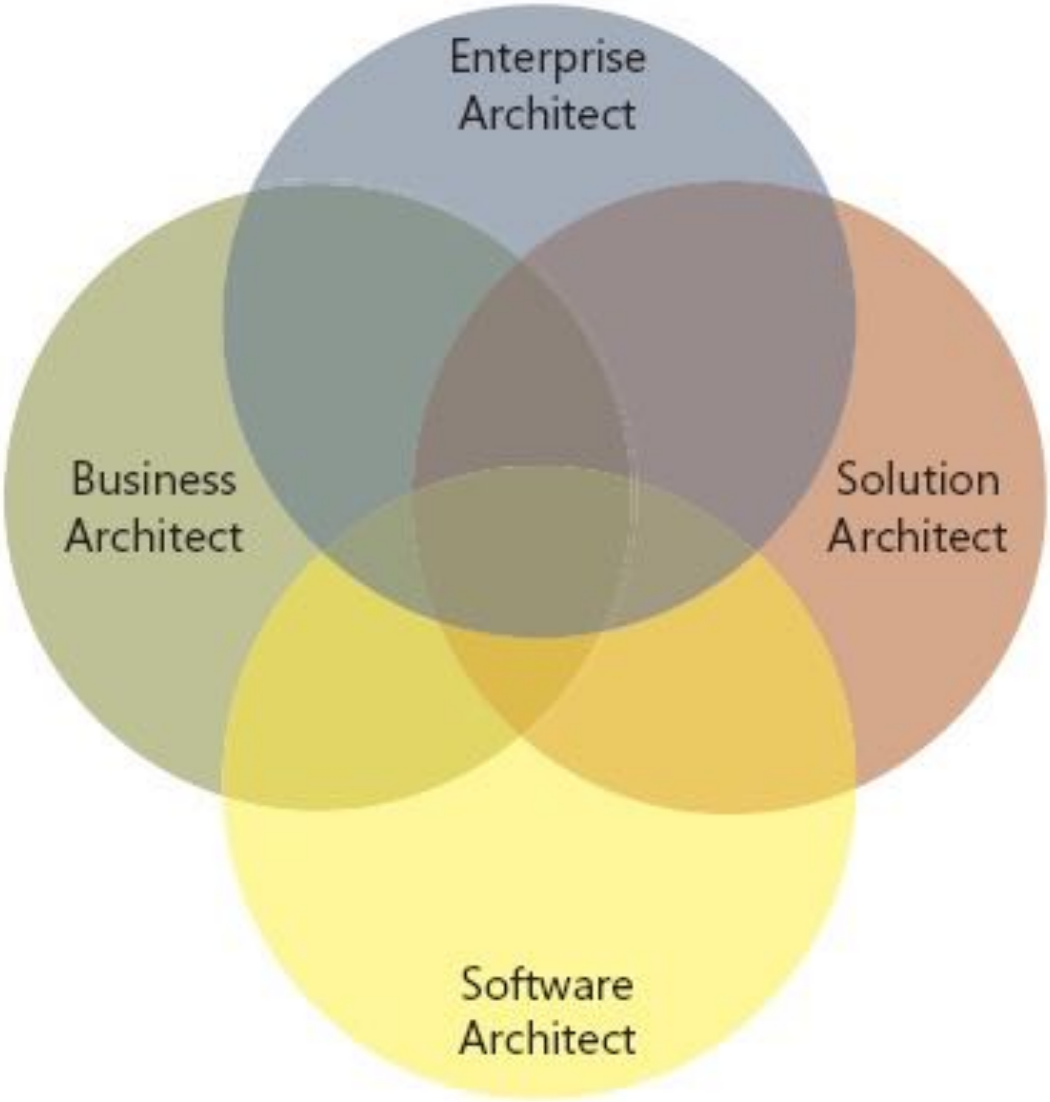


Source: City of Burnsville

New York City

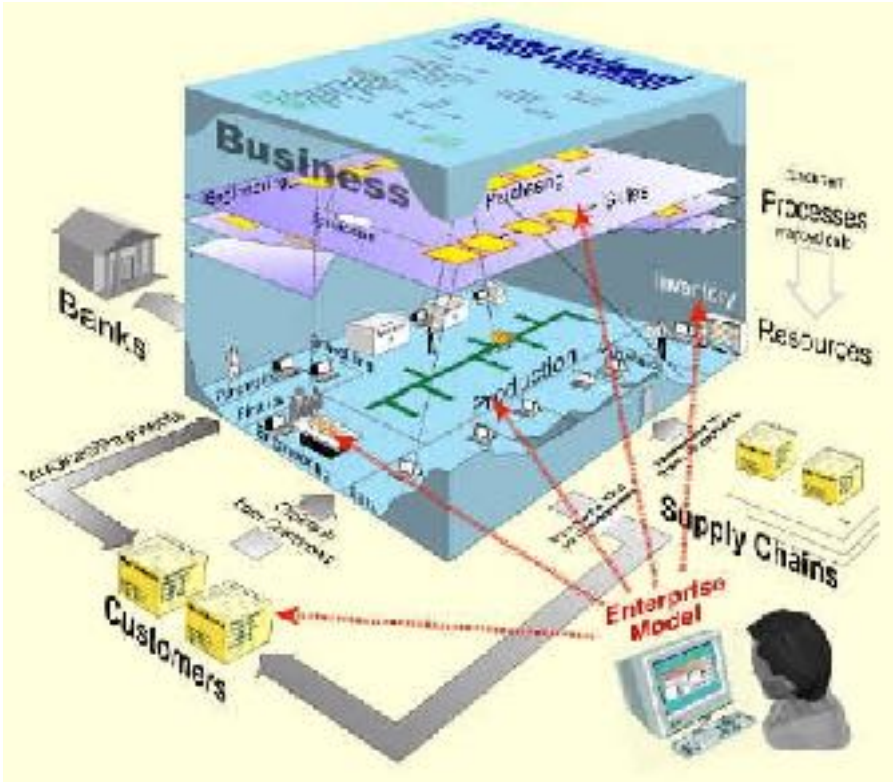
If you are building an enterprise-wide, mission critical, highly distributed system, you might need a database architect, a application architect, an infrastructure architect, a business architect, and an enterprise architect.

Architect Roles



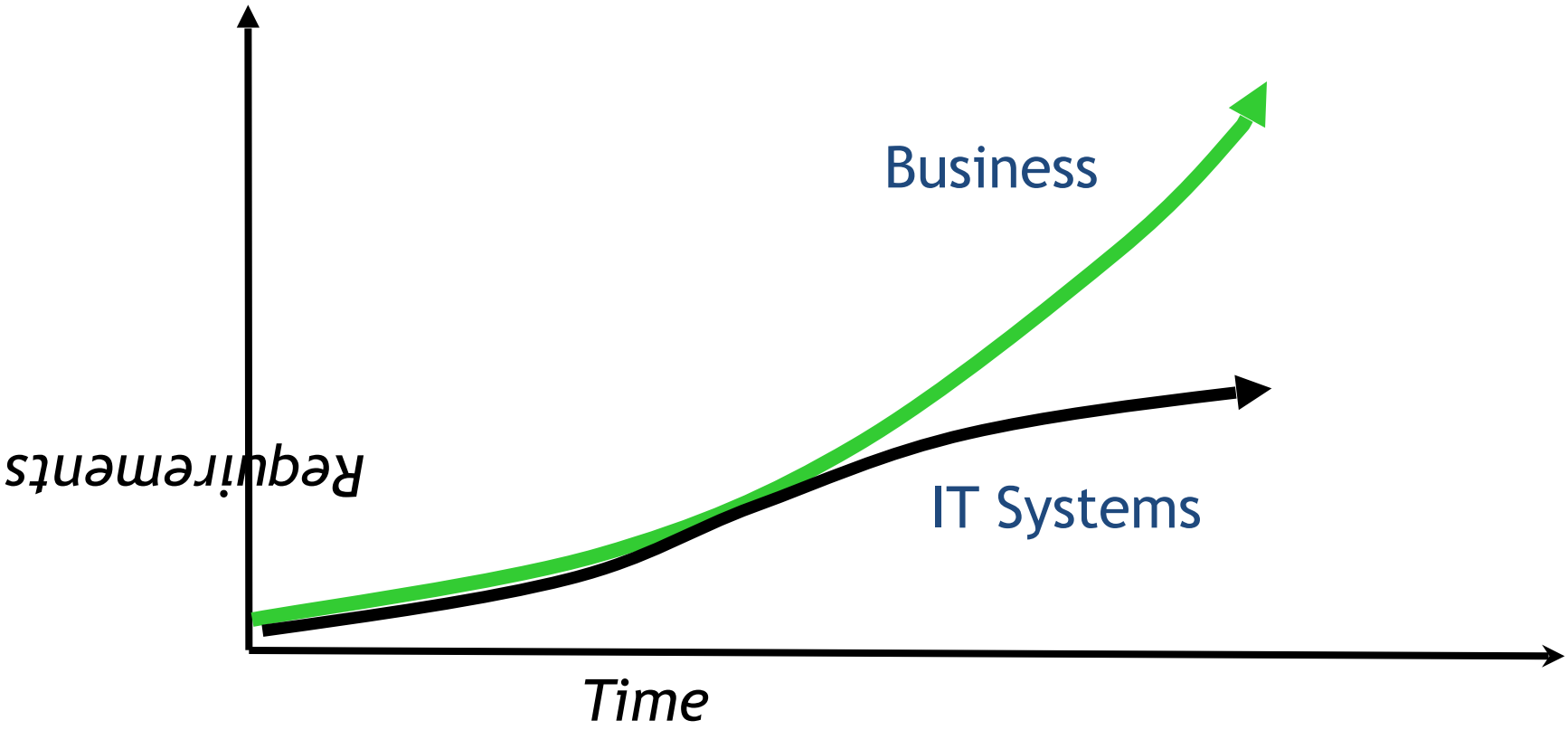
Business Architect

Business Architect

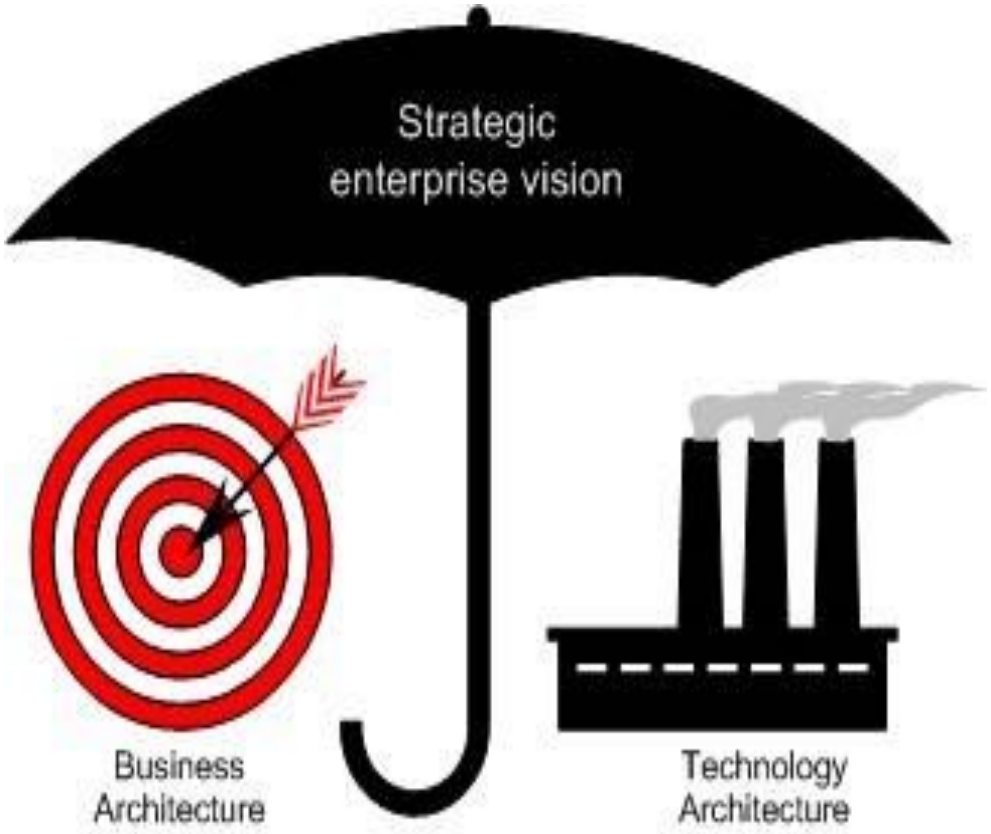


Focused on devising a business process to adapt the enterprise into the dynamically changing the economical market environment to attain the enterprise vision and mission.

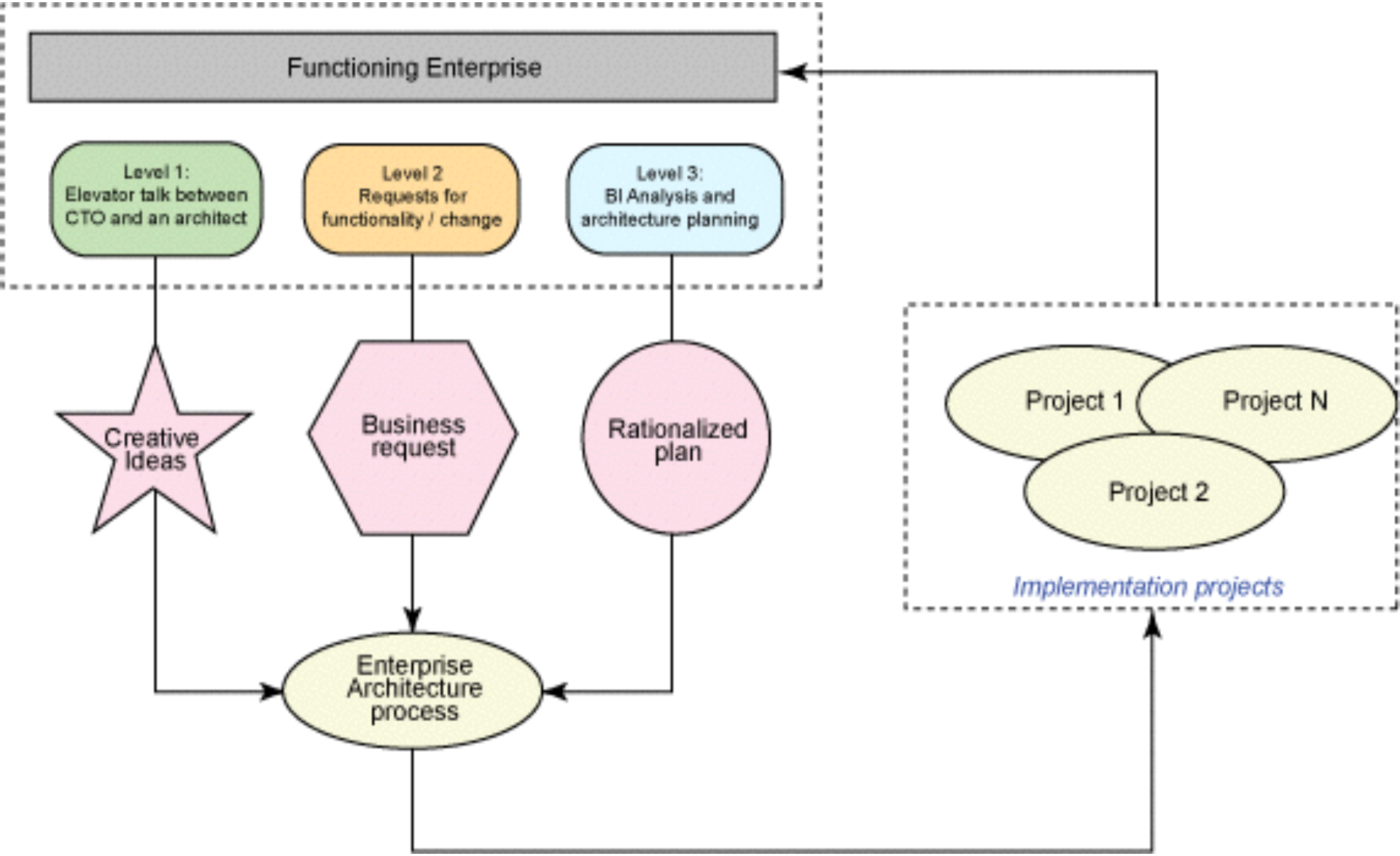
Enterprise Architect


Business
IT Systems
Requirements
Time

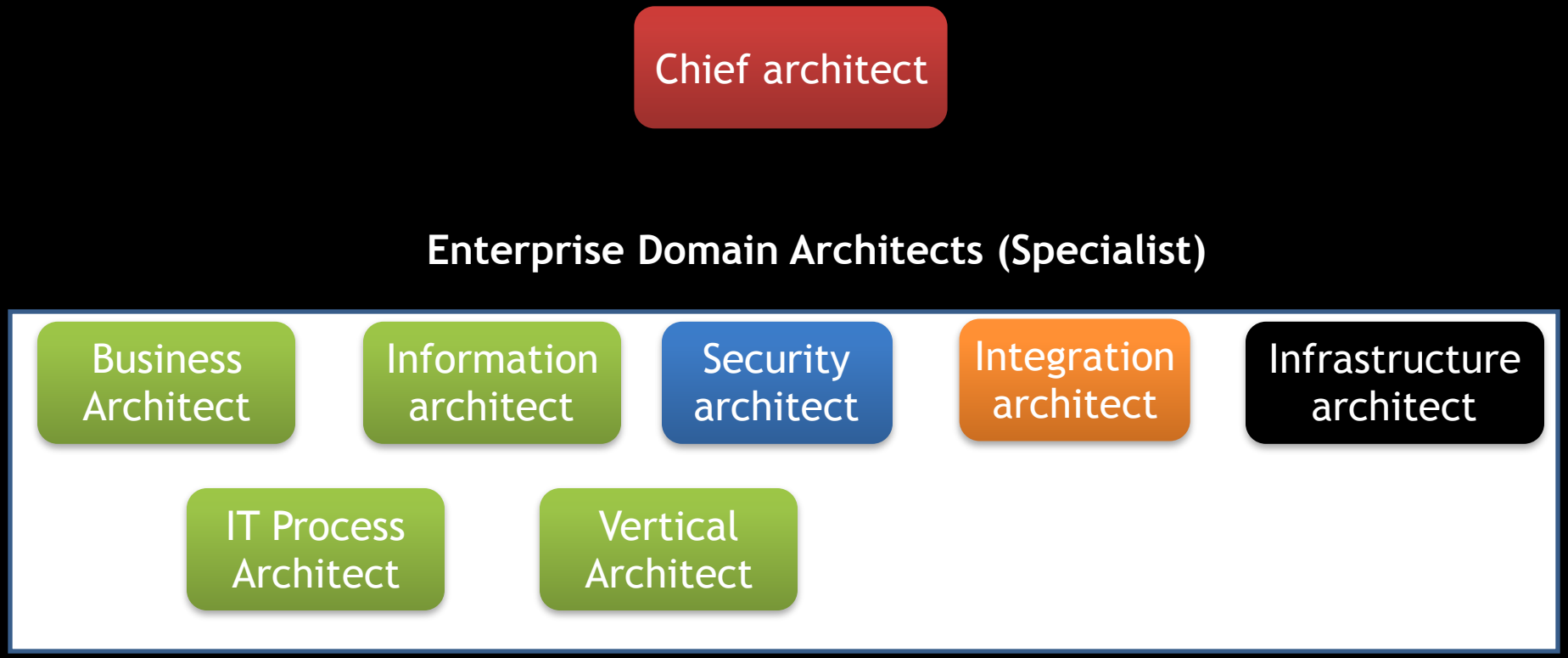
Business - IT Alignment



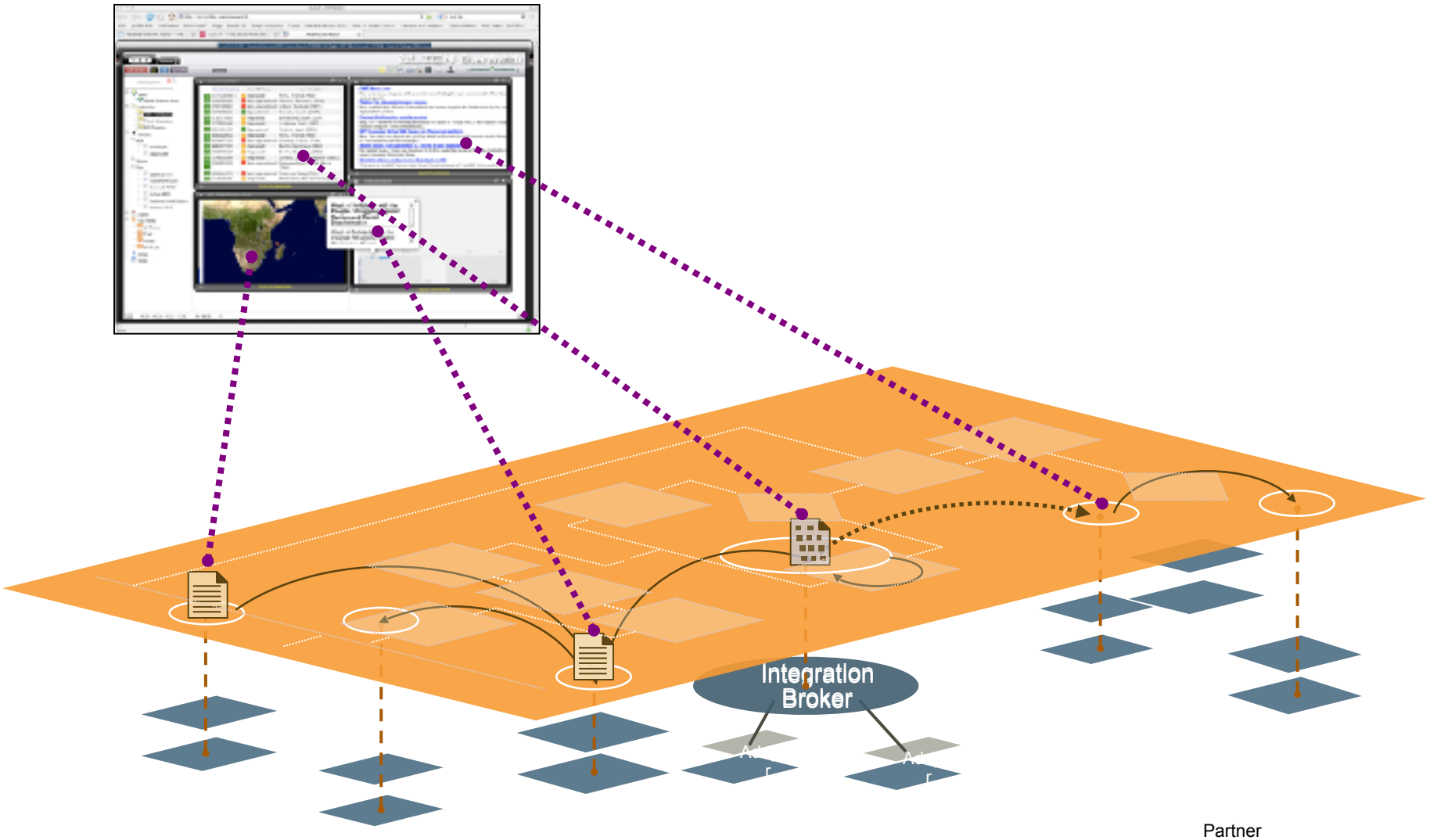
Takes a holistic view of the organization that unites business and technology concerns into a strategic enterprise vision.


Functioning Enterprise
Level 1:
Elevator talk between
CTO and an architect
Level 2
Requests for
functionality / change
Level 3:
BI Analysis and
architecture planning
Creative
Ideas
Business
request
Rationalized
plan
Enterprise
Architecture
process
Project 1
Project N
Project 2
Implementation projects

The Chief Architect has key interactions with the Enterprise Domain Architects.



Solution Architect


Integration
Broker
Partner
Enterp
rise

typically are assigned to
the development of

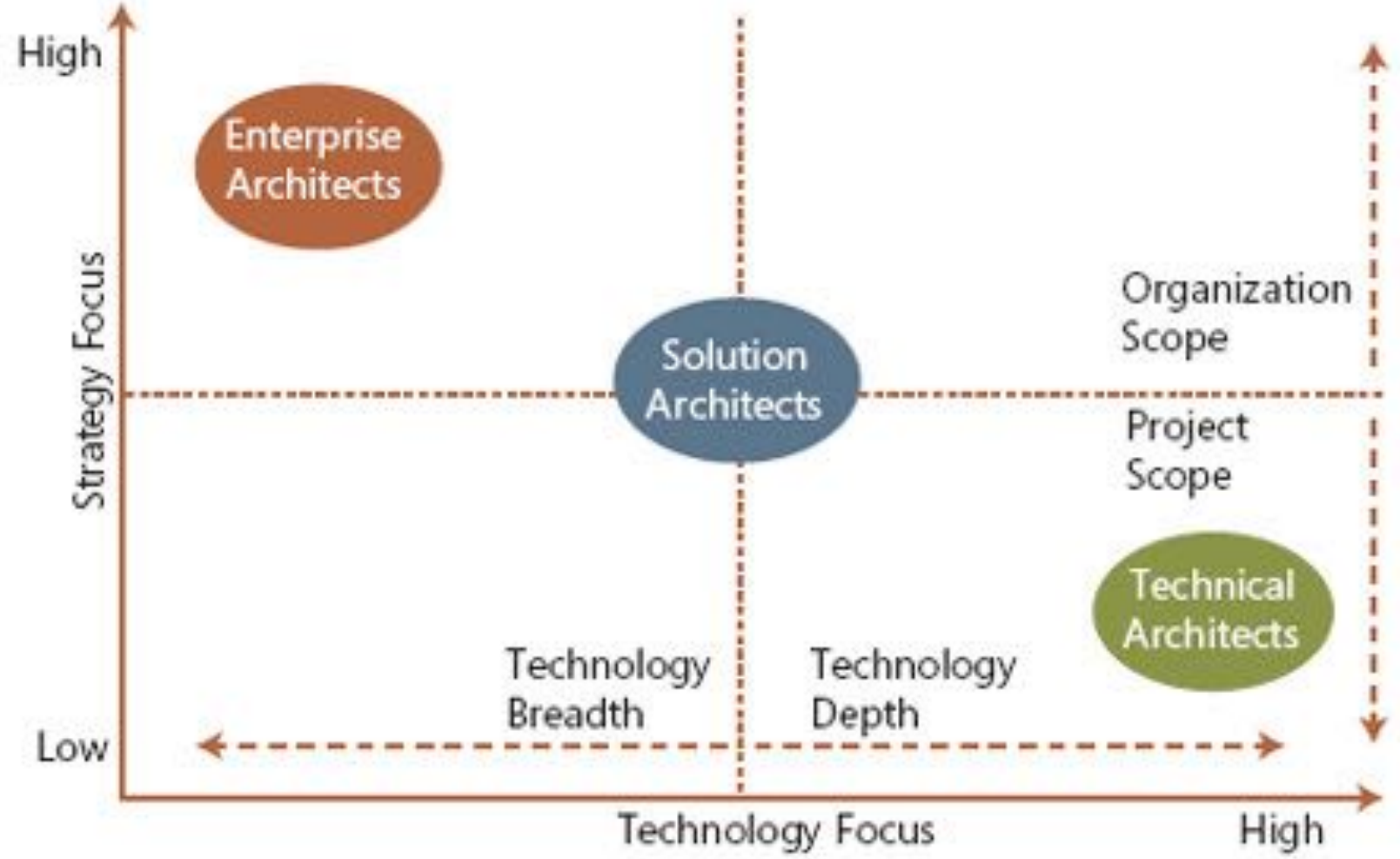
multiple applications

Have experience on

multiple Hardware and

Software Environments

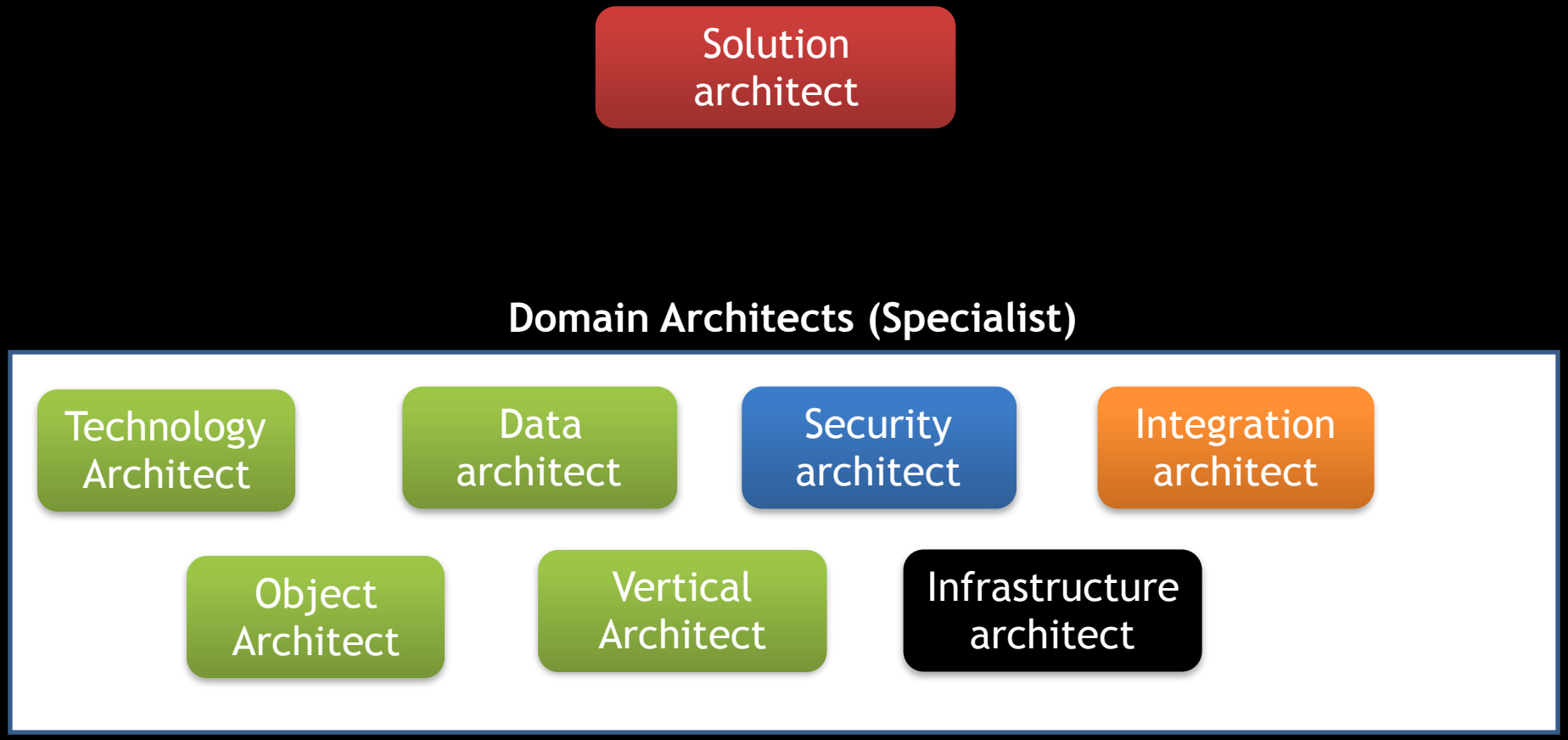
Solution Architect



The role is clearer in

larger projects,

particularly when many systems are involved

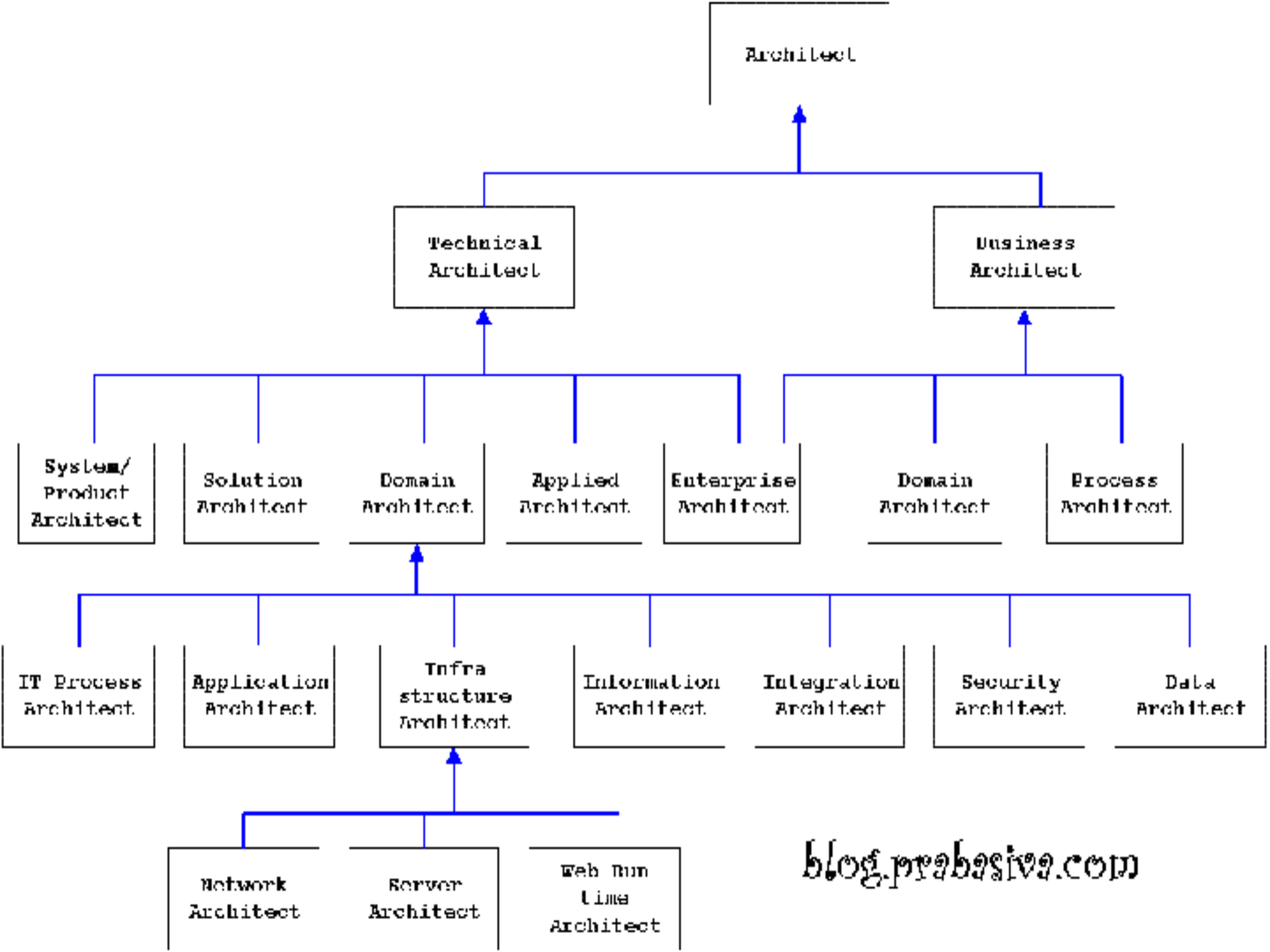

Solution architect
Domain Architects (Specialist)
Technology Architect
Data architect
Security architect
Integration architect
Object Architect
Vertical Architect
Infrastructure architect

Application Architect

The most **tactical** of all
the software architect roles

Works with the structure
and design of software system

	Business	Enterprise	Solution	Application
Soft Skills				
Communicates well with key stakeholders (C-level officers)	#	*	#	#
Communicates well with stakeholders (Director / Manager level)	*	*	*	#
Public Speaking	~	*	~	#
Writing Skills	*	*	~	#
Hard Skills				
Business Process Engineering	*	*	~	#
Programming	#	#	*	*
Requirements Analysis	*	~	~	#
Software Design	#	~	*	*
Scope	Process	Organization	Single Solution	Single Project


Architect
Technical Architect
Business Architect
System/ Product Architect
Solution Architect
Domain Architect
Applied Architect
Enterprise Architect
Domain Architect
Process Architect
IT Process Architect
Application Architect
Infra structure Architect
Information Architect
Integration Architect
Security Architect
Data Architect
Network Architect
Server Architect
Web Run time Architect
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