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MIDWEST ARCHITECTURE COMMUNITY COLLABORATION 2020

NOVEMBER 5, 2020

MACC 2020: Architecture Leadership / Agile Architecture
What successful agile architects do

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Lead Business Architect, Pegasystems

MACC MISSION

- The Midwest Architecture Community Collaboration's (MACC) purpose is to bring all domains of architecture together to share information and techniques of interest to all of us. It is our shared belief that through collaboration, we can better understand and promote the significance of architecture to business success.

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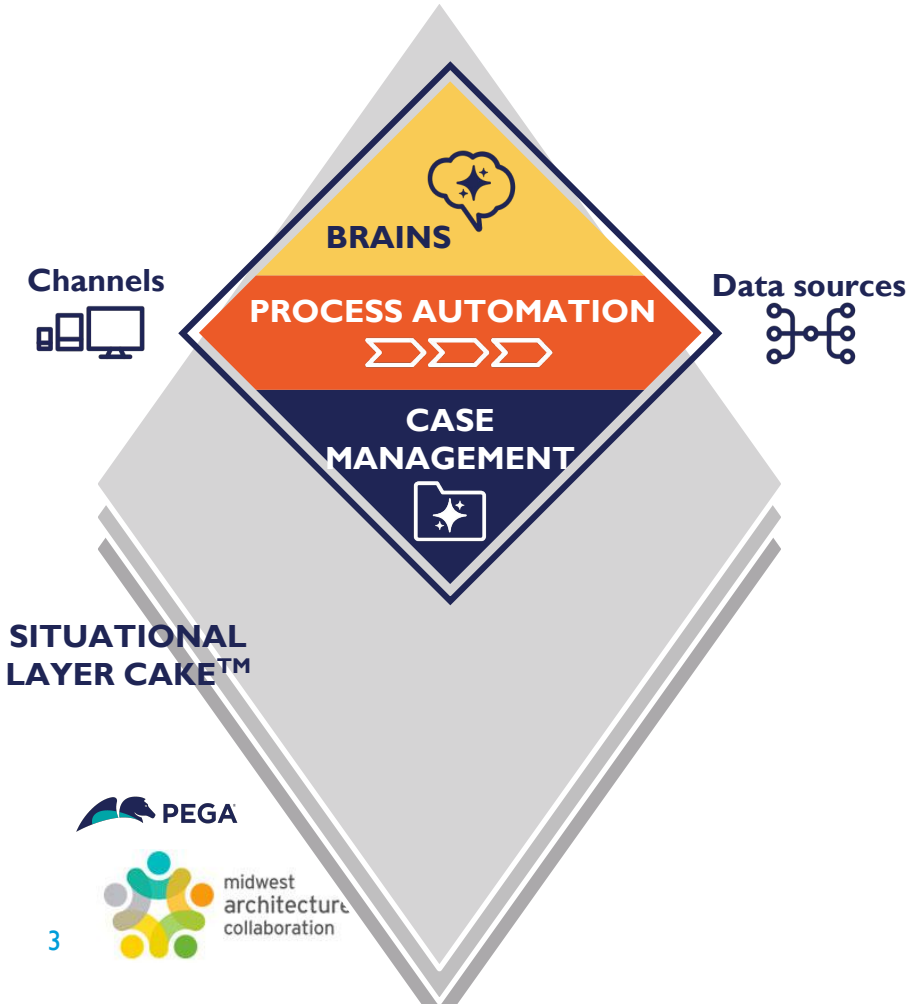
PEGASYSTEMS

Providing software built on a Center-out™ Business Architecture



Industry solutions

Business solutions

1:1 Customer Engagement

- Centralized, real-time, AI-powered customer decision hub
- Delivery of next-best-actions at every customer interaction, across all channels

Customer Service

- State-of-the-art customer service application
- Out-of-the-box, industry-specific microjourneys

Intelligent Automation

- Low-code case management
- Robotic Process Automation at enterprise scale

Pega Express™ Methodology & low-code Pega App Studio™

Future-proof technology

What is architecture, and who are those architects?

ARCHITECTURE IS NOT IEEE'S DEFINITION

Architecture is the fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution

ISO/IEC 42010

- "Fundamental concepts or properties"?
- Fundamental to whom?

ARCHITECTURE IS NOT RUP'S DEFINITION

Architecture is the highest level concept of a system in its environment. The architecture of a software system (at a given point in time) is its organization or structure of significant components interacting through interfaces, those components being composed of successively smaller components and interfaces.

Agility and Discipline Made Easy: Practices from OpenUP and RUP

- "Highest level concept of a system"?
- Highest level to whom?

ARCHITECTURE IS NOT UPFRONT DESIGN

Architecture is the set of design decisions that need to be made early on

- These are actually the things that you wish you could get right early on

- But early on, you don't have the information to do so

SO, WHAT IS ARCHITECTURE?

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ARCHITECTURE: SHARED DESIGN UNDERSTANDING

- ✔ Architecture is the understanding of a system's design shared by its expert practitioners
- ✔ For software architecture, this includes only those components and interfaces that are understood by all expert developers
- ✔ Architecture, therefore, is a social construct
  - Doesn't depend solely on the software
  - Also depends on what group consensus deems important

ARCHITECTURE: WHAT'S HARD TO CHANGE

- ✔ Architecture is a set of decisions made about aspects of a system (and its development) that are hard (or perceived to be hard) to change

- ✔ "Hard to change" often closely correlates with "what we wish we could get right early on"

WHO ARE ARCHITECTS?

Architects build a shared design understanding among a system's expert developers

Architects find ways to make hard-to-change things easier to change

In short, they worry about the important stuff

What do successful agile architects do?

1. ABOVE ALL ELSE, SUCCESSFUL AGILE ARCHITECTS SERVE THE BUSINESS

SERVING THE BUSINESS IS NOT ABOUT "DOING THE RIGHT THING"

Architecture is not important because it's morally right

Architecture is important because it has economic value

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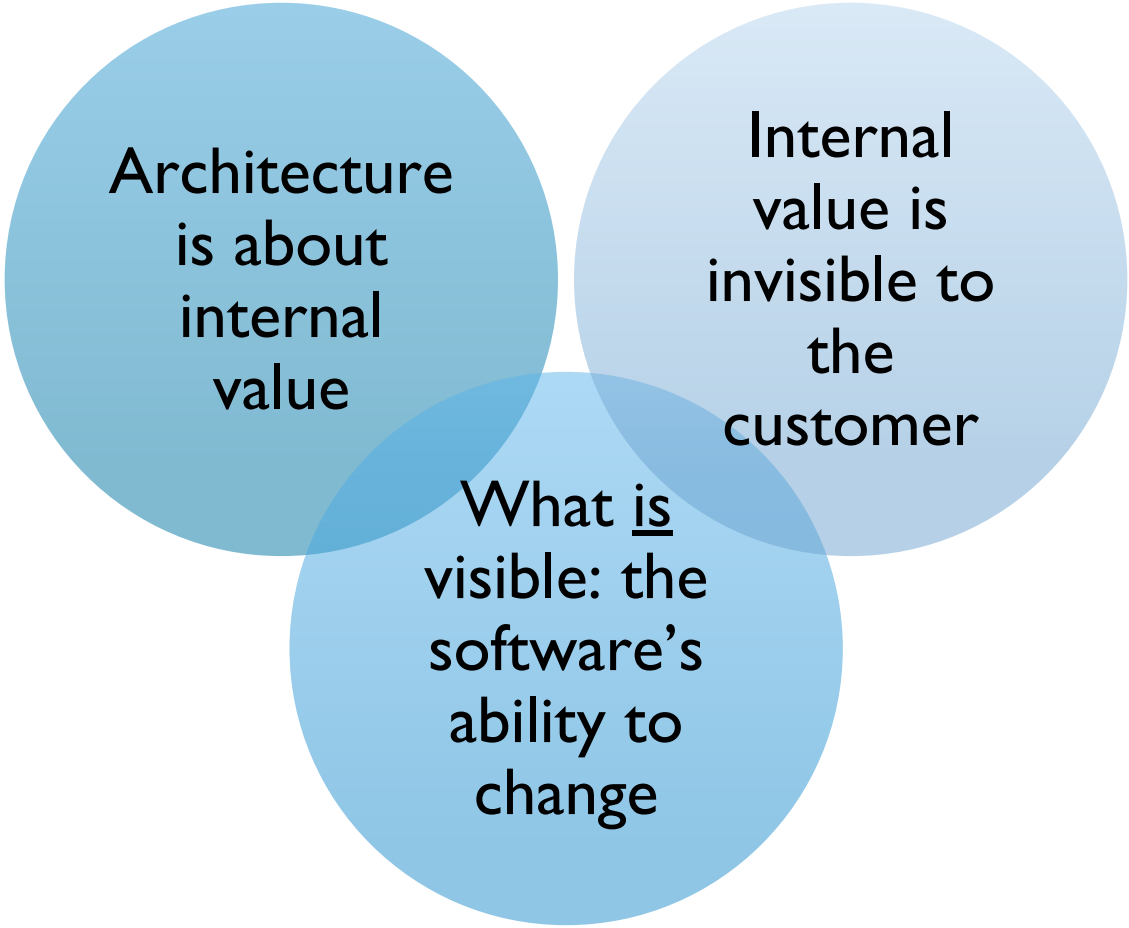
ARCHITECTURE'S ECONOMIC VALUE



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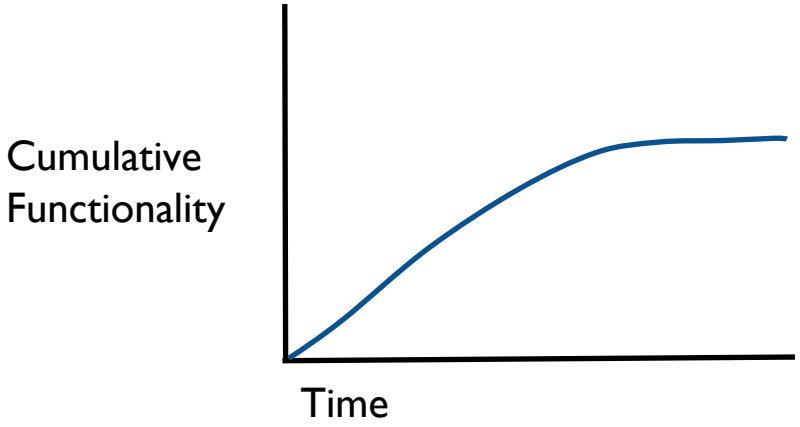
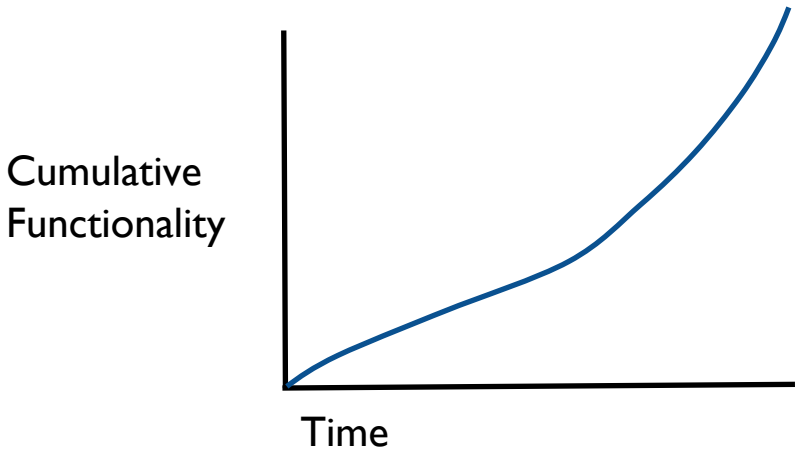
SOFTWARE'S ABILITY TO CHANGE

- Poorly architected software becomes more difficult to change over time



- Well-architected software can actually become easier to change over time



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ADDRESSING IRREVERSIBILITY

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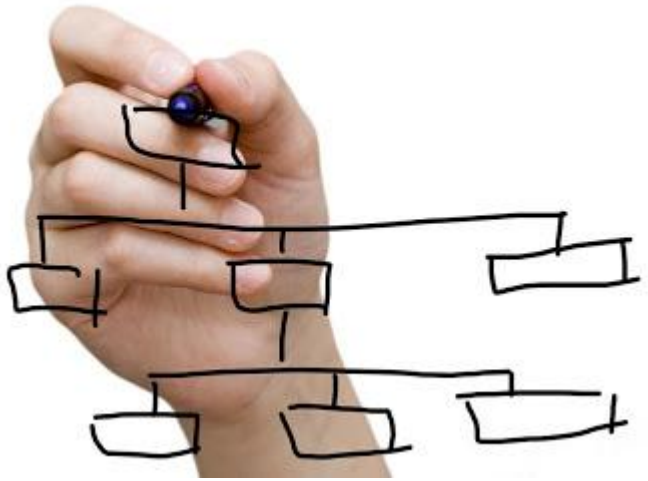
ADDRESSING IRREVERSIBILITY

- Irreversibility is a core driver of complexity
- Finding ways to make those things easier to change is actually getting rid of architecture
- Anything can be made easy to change, but …
  - Making anything easy to change makes the overall system more complex
  - Making ***everything*** easy to change makes the system ***very*** complex

2. SUCCESSFUL AGILE ARCHITECTS HELP IT SERVE THE BUSINESS

HELP IT SERVE THE BUSINESS

- Architects may not have influence over how org charts are drawn
- They can, however, have significant influence over how work is done within that structure

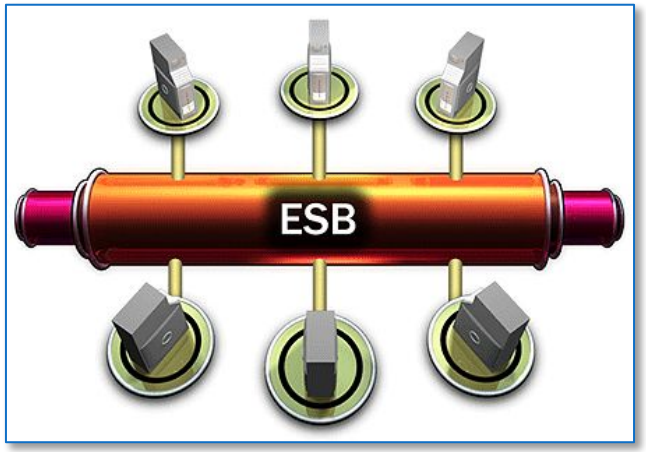


CONWAY'S LAW

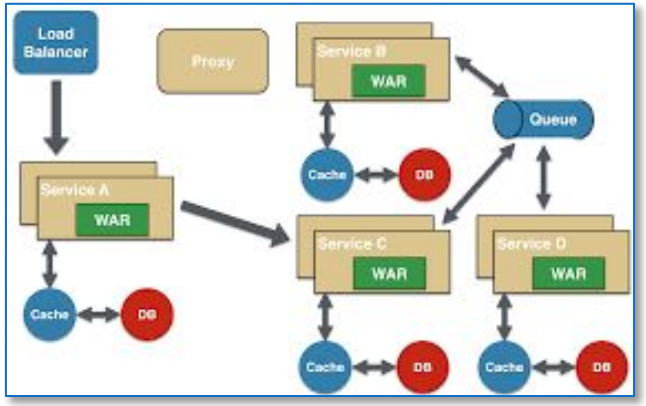
Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure.

SYSTEMS' ARCHITECTURE

- Centralized architecture groups tend to produce architectures based on service busses, monolithic server-side applications, etc.



- Decentralized architectural efforts and responsibility tend to produce decentralized architectures based on patterns like microservices



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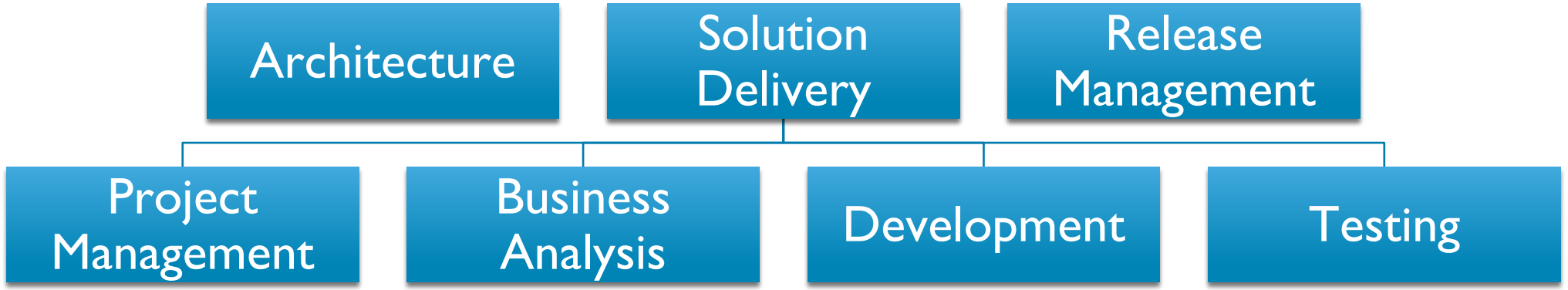
NEDWEK'S COROLLARY

Any enterprise will favor an organizational design whose structure supports the enterprise's communication structure.

FUNCTIONAL GROUPS

A command-and-control enterprise will

- Pool people into functional departments
- Assign them to projects (for the life of the project)
- Have them report to a functional manager



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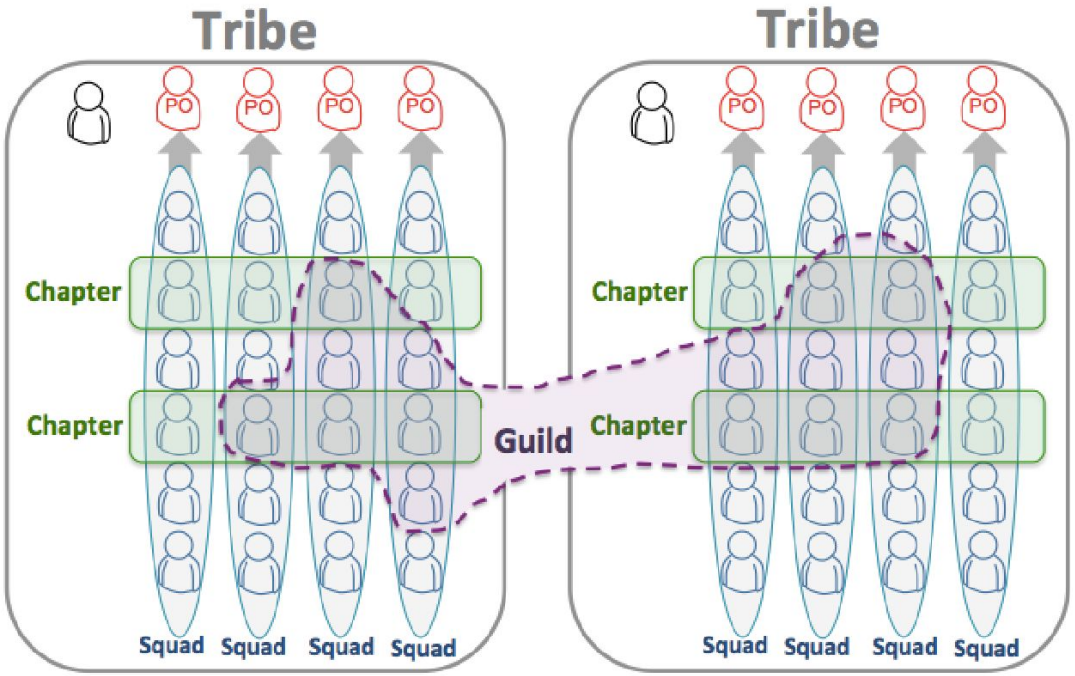
AN ALTERNATIVE TO FUNCTIONAL GROUPS: SPOTIFY

- A matrixed organization, but with a different type of matrix
- Traditional matrix is weighted toward hierarchy
  - Functional departments
  - Assignment to projects
  - Reporting to functional manager
- This one's weighted toward delivery
  - Vertical dimension: the "what"
  - Horizontal dimension: the "how"



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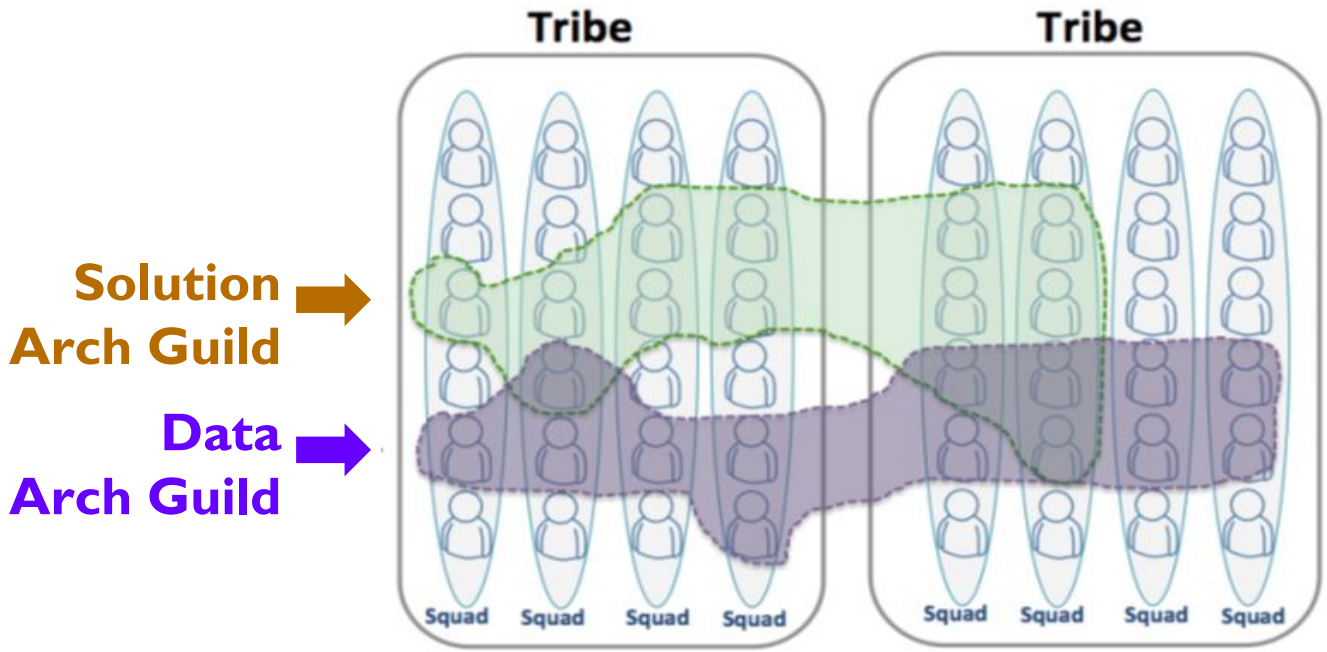
ARCHITECTURE IN THIS WORLD

- Guilds provide architectural disciplines with a way to organize
- These are self-selecting (and often self-managing) Communities of Interest
- This is ***not*** the traditional COE model



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3. SUCCESSFUL AGILE ARCHITECTS EDUCATE, TEACH, AND INSPIRE

CULTIVATING A SHARED DESIGN UNDERSTANDING

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HOW: MODES OF ARCHITECTURAL LEADERSHIP

Observer

Scout

Coach

Team Member

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ARCHITECT AS OBSERVER

- *Laissez faire* involvement
- Wants to empower teams to self-organize
  - Hands-off … let the team decide
- Empowering people means more than simply taking your hands off the wheel
  - Teams need more than freedom
  - They need skills and context
  - More on that later …

ARCHITECT AS SCOUT

- Architect is nominated to find an initial approach
  - Goal: avoid becoming a dictator
  - Just scout ahead and report back
  - The teams own the design
- Problems
  - Architect becomes bottleneck
  - Team members see problems with architecture but didn't question it
  - "I thought you knew something I didn't"
- This is a leadership problem, not a technical problem

ARCHITECT AS COACH

- People are most successful when they have
  - **Technical competence: how**
    - Do they know how to do the job?
    - Do they have the skills to make decisions?
  - **Organizational clarity: why**
    - What assumptions are built into the architecture?
    - What are the motivations behind the architectural approach?
    - What is the *intent* of the architecture?

- Having **both** of those allows us to
  - Stop moving information to those with the authority
  - Start moving authority to those with the information

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PROVIDING ORGANIZATIONAL CLARITY

- Partner to arrive at solutions
- Focus on intent
- Develop a framework for conflict resolution
- Embrace disagreement

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ARCHITECT AS TEAM MEMBER

- The **team** should
  - Have the skills to produce the right solution
  - Understand the architecture
    - Design
    - Intent, reasons, and assumptions behind it
  - Have the ability and authority to make design decisions
  - Be able to resolve conflict and navigate engineering tradeoffs
  - Feel ownership, be motivated and engaged

- The **architect** should
  - Lead by helping the team reach that state

HOW? BECOME A SERVANT LEADER

Listen

- To the business
- To solution delivery teams
- To operations teams

Share power

- Collaborate, don't control
- Suggest, don't stipulate
- Coach, don't command

Help people grow

- Guide architectural thought
- Unleash energy & intelligence of others
- Seek out candidate architects

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Where have we come?

SUMMARY

- Architecture is the important stuff … both
  - Cultivating a shared design understanding
  - Making decisions about things that are presumed to be hard to change

- An architect has three jobs
  1. Serve the business
  2. Help IT serve the business
  3. Educate, teach, and inspire

FINALLY …

To paraphrase Pegasystems founder and CEO Alan Trefler:

Our job as architects is not to reach across the aisle to the development community.

Our job is to work actively to get rid of the aisle.

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