Communication

Part of your role is *communicator*

- Technology team
- Program/project management
- Stakeholders
- And posterity

Styles

- Hub
- Translator
- Shaman

On documentation

Documents don't drive your process,

they grow out of it.

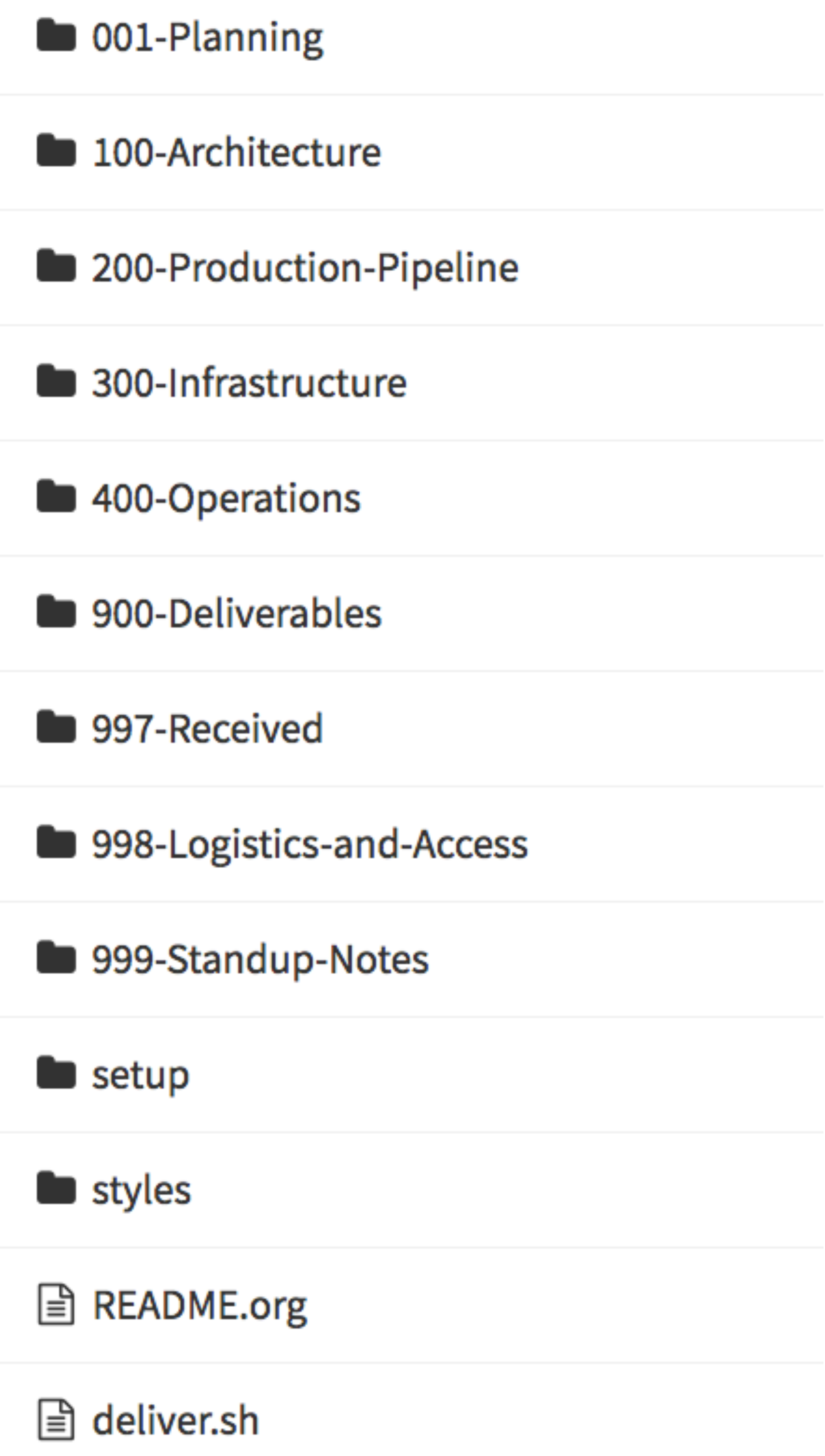
Use documents to

- Capture information
- Present your thinking
- Identify areas to explore

Some Tools
for Communicating

"Architect's Folder"

https://gitlab.com/mtnygard/arch-folder-template



- 001-Planning
- 100-Architecture
- 200-Production-Pipeline
- 300-Infrastructure
- 400-Operations
- 900-Deliverables
- 997-Received
- 998-Logistics-and-Access
- 999-Standup-Notes
- setup
- styles
- README.org
- deliver.sh

"When can we remove this horrible hack?"

"Does anyone know why we format our HTML this way?"

"I don't know why we do that, so I'm afraid to remove it."

Architecture Decision Records

Michael Nygard, Inspired by Philippe Kruchten

ADR

- Point in time
- Explains the rationale for a Decision
- Immutable record
- May be superceded or overturned

ADR

- Context
- Decision
- Consequences

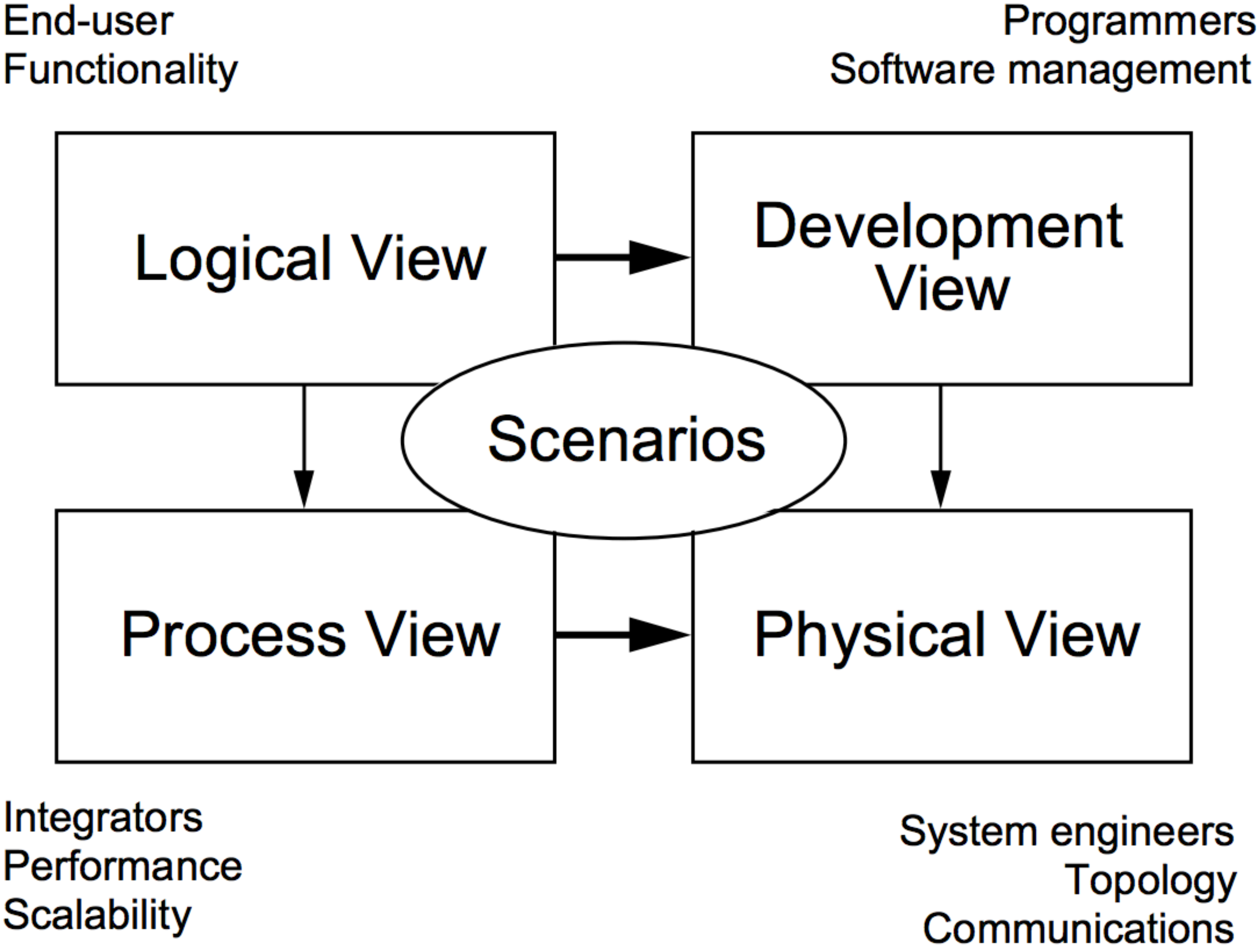
And status of the decision.

Sample ADRs

https://github.com/arachne-framework/architecture

4+1 Views

Philippe Kruchten



End-user
Functionality

Programmers
Software management

Logical View

Development View

Scenarios

Process View

Physical View

Integrators
Performance
Scalability

System engineers
Topology
Communications

Logical View -> Class diagrams

Development View -> Library and source code structure

Process View -> Concurrency and synchronization

Physical View -> Mapping to hardware

Scenarios -> Use cases mapped through the other views

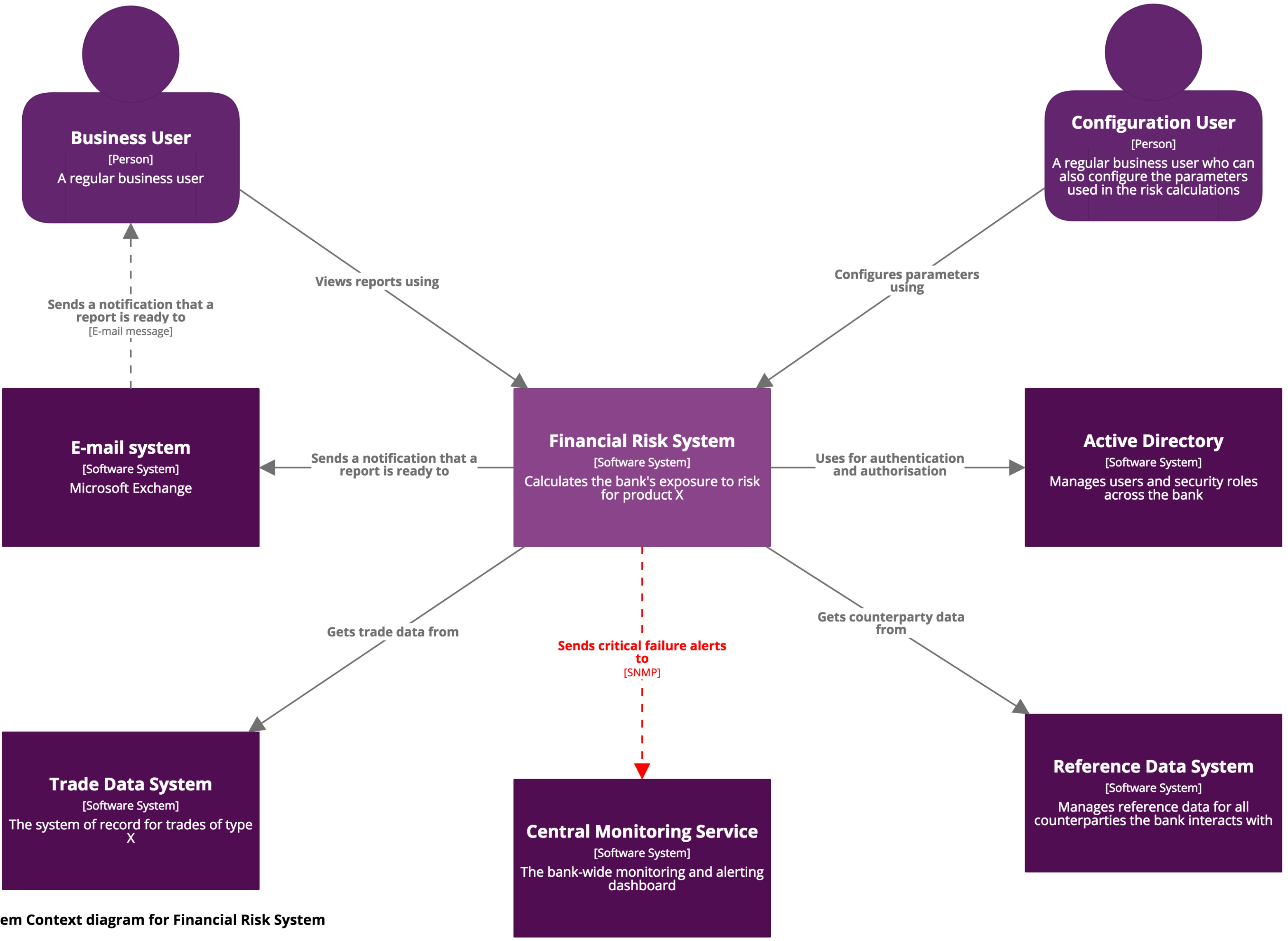
C4 Model

Simon Brown

1. Context
2. Containers
3. Components
4. Classes

following diagrams courtesy of Structurizr.com

Context



Business User
[Person]
A regular business user

Configuration User
[Person]
A regular business user who can also configure the parameters used in the risk calculations

Views reports using

Configures parameters using

Sends a notification that a report is ready to
[E-mail message]

E-mail system
[Software System]
Microsoft Exchange

Sends a notification that a report is ready to

Financial Risk System
[Software System]
Calculates the bank's exposure to risk for product X

Uses for authentication and authorisation

Active Directory
[Software System]
Manages users and security roles across the bank

Gets trade data from

Sends critical failure alerts to
[SNMP]

Gets counterparty data from

Trade Data System
[Software System]
The system of record for trades of type X

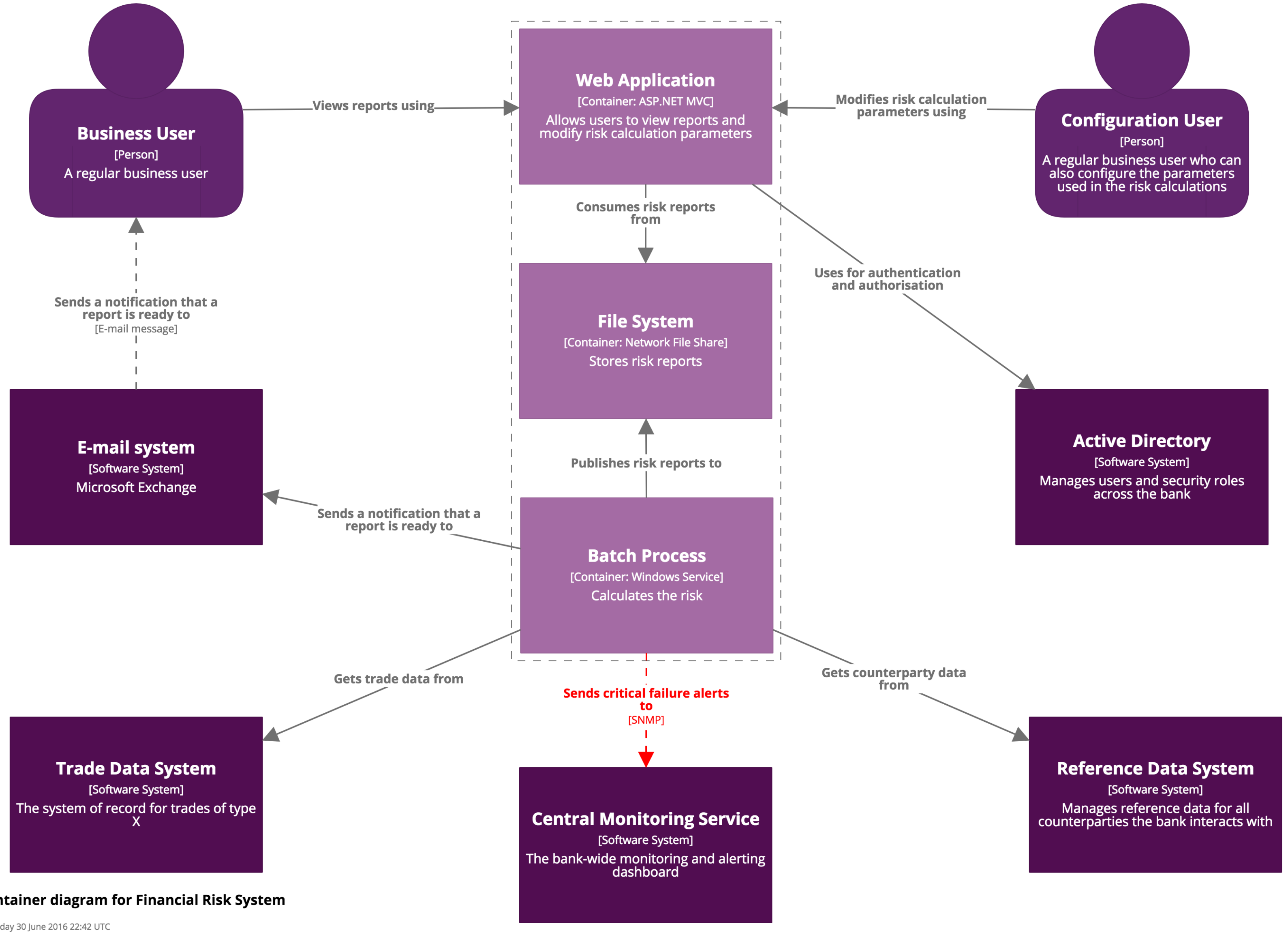
Central Monitoring Service
[Software System]
The bank-wide monitoring and alerting dashboard

Reference Data System
[Software System]
Manages reference data for all counterparties the bank interacts with

System Context diagram for Financial Risk System

Thursday 30 June 2016 22:42 UTC

Containers



Business User
[Person]
A regular business user

Views reports using

Web Application
[Container: ASP.NET MVC]
Allows users to view reports and modify risk calculation parameters

Modifies risk calculation parameters using

Configuration User
[Person]
A regular business user who can also configure the parameters used in the risk calculations

Consumes risk reports from

Uses for authentication and authorisation

Sends a notification that a report is ready to
[E-mail message]

File System
[Container: Network File Share]
Stores risk reports

E-mail system
[Software System]
Microsoft Exchange

Publishes risk reports to

Active Directory
[Software System]
Manages users and security roles across the bank

Sends a notification that a report is ready to

Batch Process
[Container: Windows Service]
Calculates the risk

Gets trade data from

Sends critical failure alerts to
[SNMP]

Gets counterparty data from

Trade Data System
[Software System]
The system of record for trades of type X

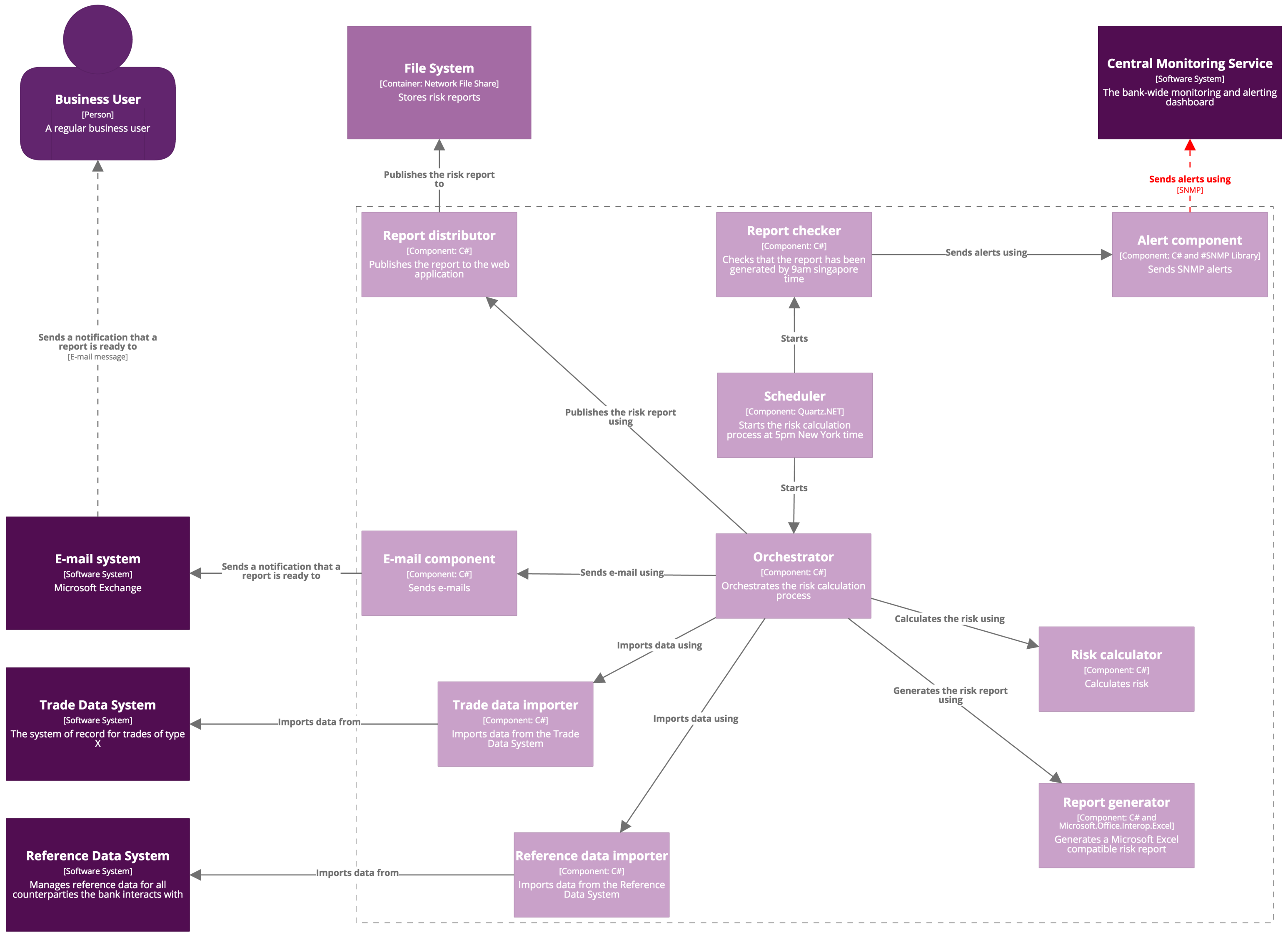
Central Monitoring Service
[Software System]
The bank-wide monitoring and alerting dashboard

Reference Data System
[Software System]
Manages reference data for all counterparties the bank interacts with

Container diagram for Financial Risk System

Thursday 30 June 2016 22:42 UTC

Components


Business User
[Person]
A regular business user
File System
[Container: Network File Share]
Stores risk reports
Central Monitoring Service
[Software System]
The bank-wide monitoring and alerting dashboard
Publishes the risk report to
Sends alerts using
[SNMP]
Report distributor
[Component: C#]
Publishes the report to the web application
Report checker
[Component: C#]
Checks that the report has been generated by 9am singapore time
Sends alerts using
Alert component
[Component: C# and #SNMP Library]
Sends SNMP alerts
Sends a notification that a report is ready to
[E-mail message]
Starts
Publishes the risk report using
Scheduler
[Component: Quartz.NET]
Starts the risk calculation process at 5pm New York time
Starts
E-mail system
[Software System]
Microsoft Exchange
Sends a notification that a report is ready to
E-mail component
[Component: C#]
Sends e-mails
Sends e-mail using
Orchestrator
[Component: C#]
Orchestrates the risk calculation process
Calculates the risk using
Risk calculator
[Component: C#]
Calculates risk
Imports data using
Trade Data System
[Software System]
The system of record for trades of type X
Imports data from
Trade data importer
[Component: C#]
Imports data from the Trade Data System
Imports data using
Generates the risk report using
Report generator
[Component: C# and Microsoft.Office.Interop.Excel]
Generates a Microsoft Excel compatible risk report
Reference Data System
[Software System]
Manages reference data for all counterparties the bank interacts with
Imports data from
Reference data importer
[Component: C#]
Imports data from the Reference Data System

Component diagram for Financial Risk System - Batch Process

Thursday 30 June 2016 22:42 UTC

Classes

In code.

(Were you expecting model-driven development?)

Work time
C4

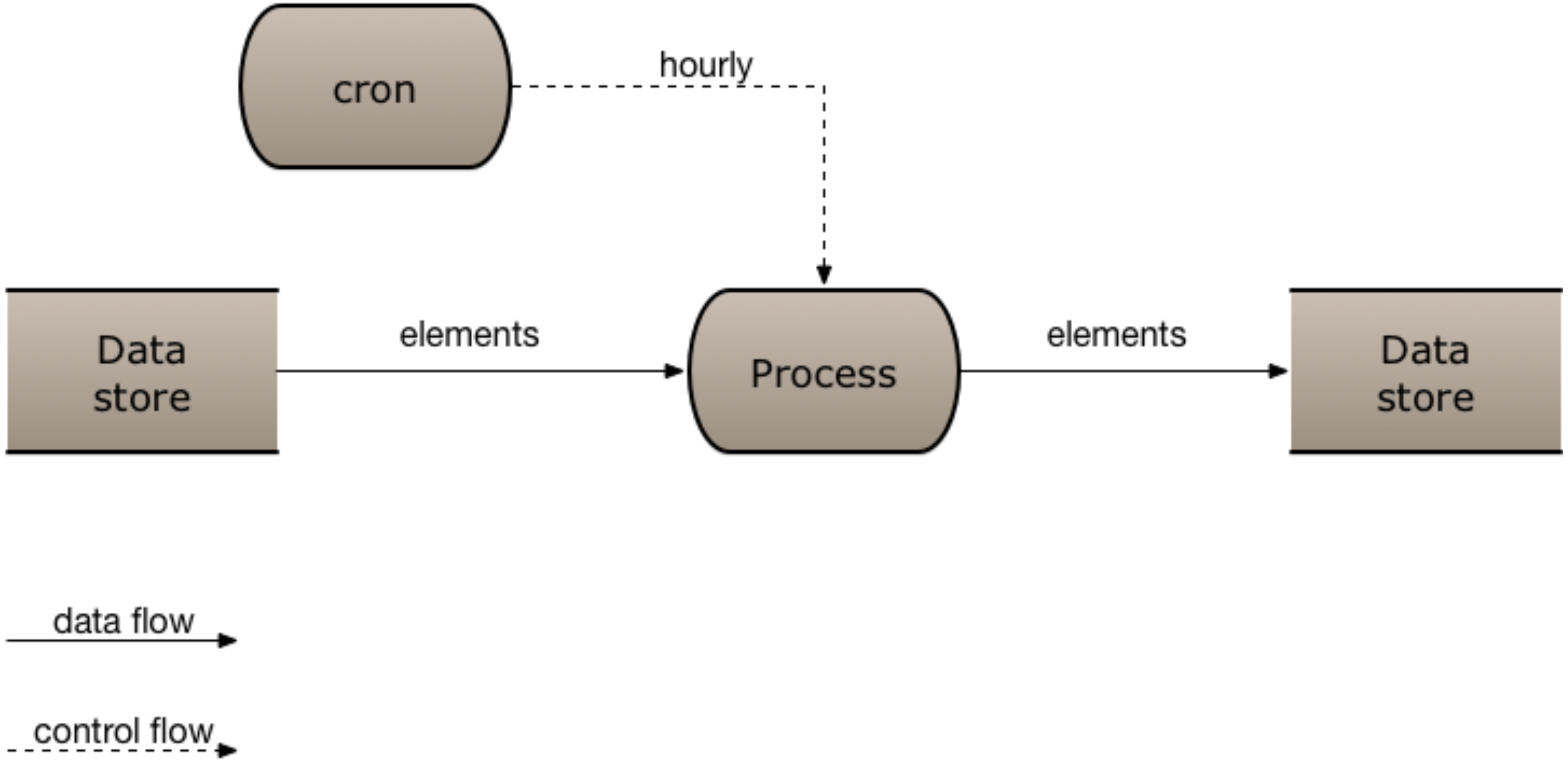
- We have the context diagram
- Now decide on the containers and components.
- Draw those diagrams

Component Communication

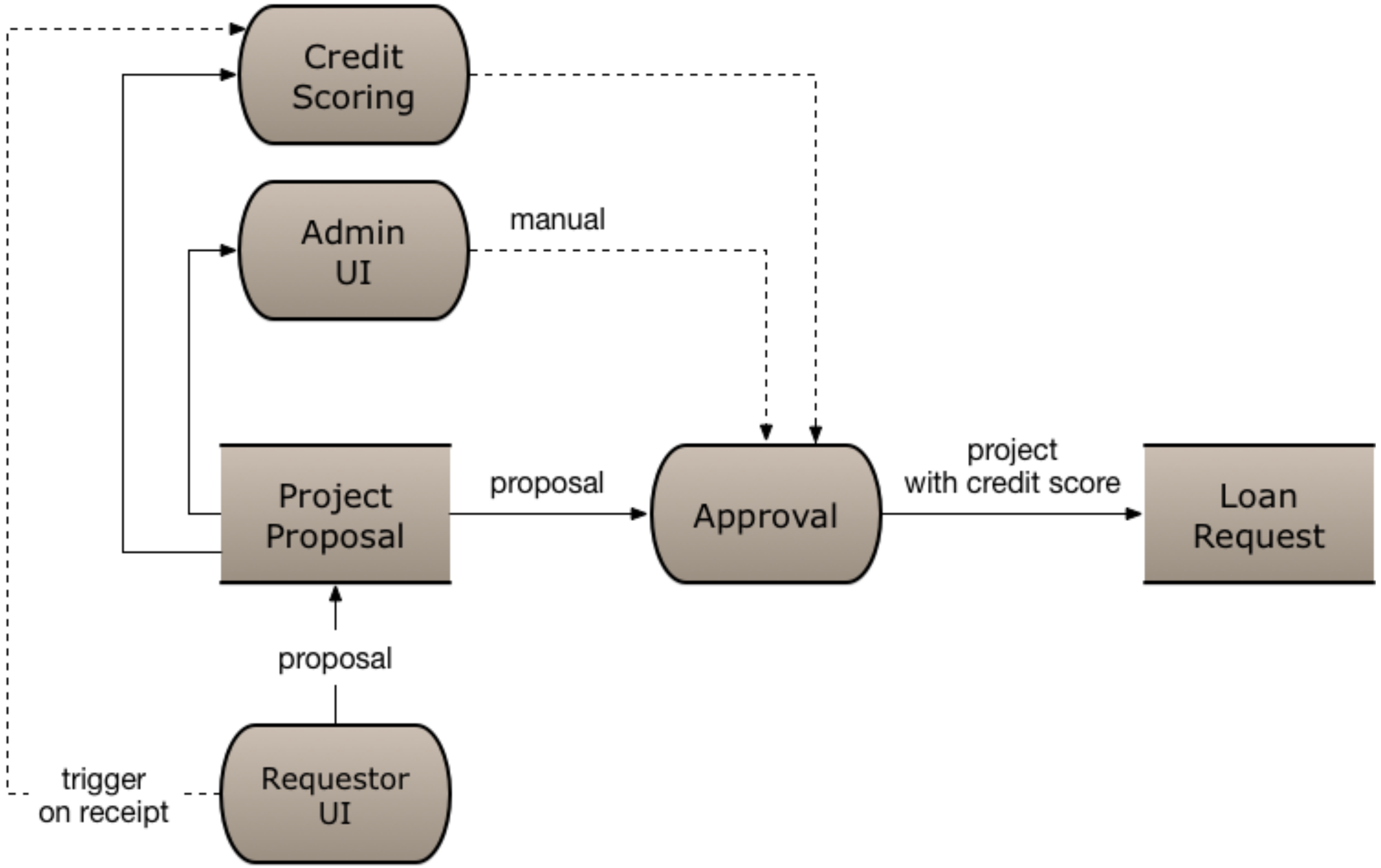
- Within bounded context
- Across contexts
- Think about architectural styles
  - Request/reply
  - Pub/sub
  - Queues

Static diagrams emphasize the static structure.

Data Flow Diagram



Data Flow Diagram


Credit Scoring
Admin UI
manual
Project Proposal
proposal
Approval
project with credit score
Loan Request
proposal
trigger on receipt
Requestor UI