Software Architecture Conference

Architecture.Next: Invalidating Old Axioms

Mark Richards

Independent Consultant

Hands-on Software Architect

Published Author|Conference Speaker

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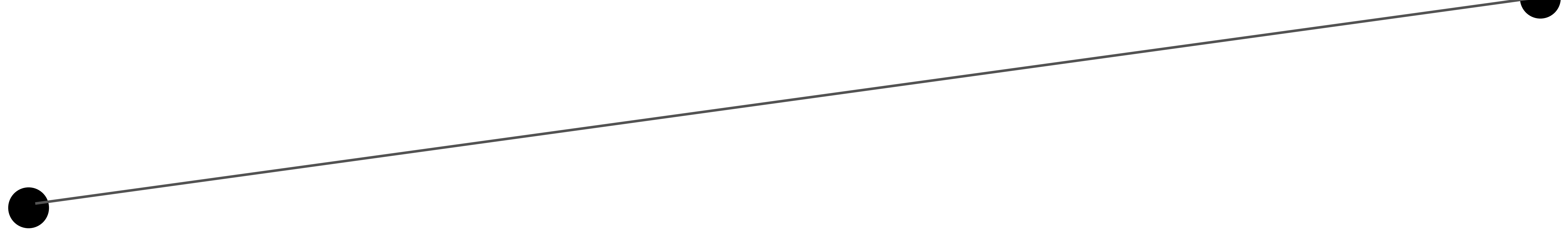
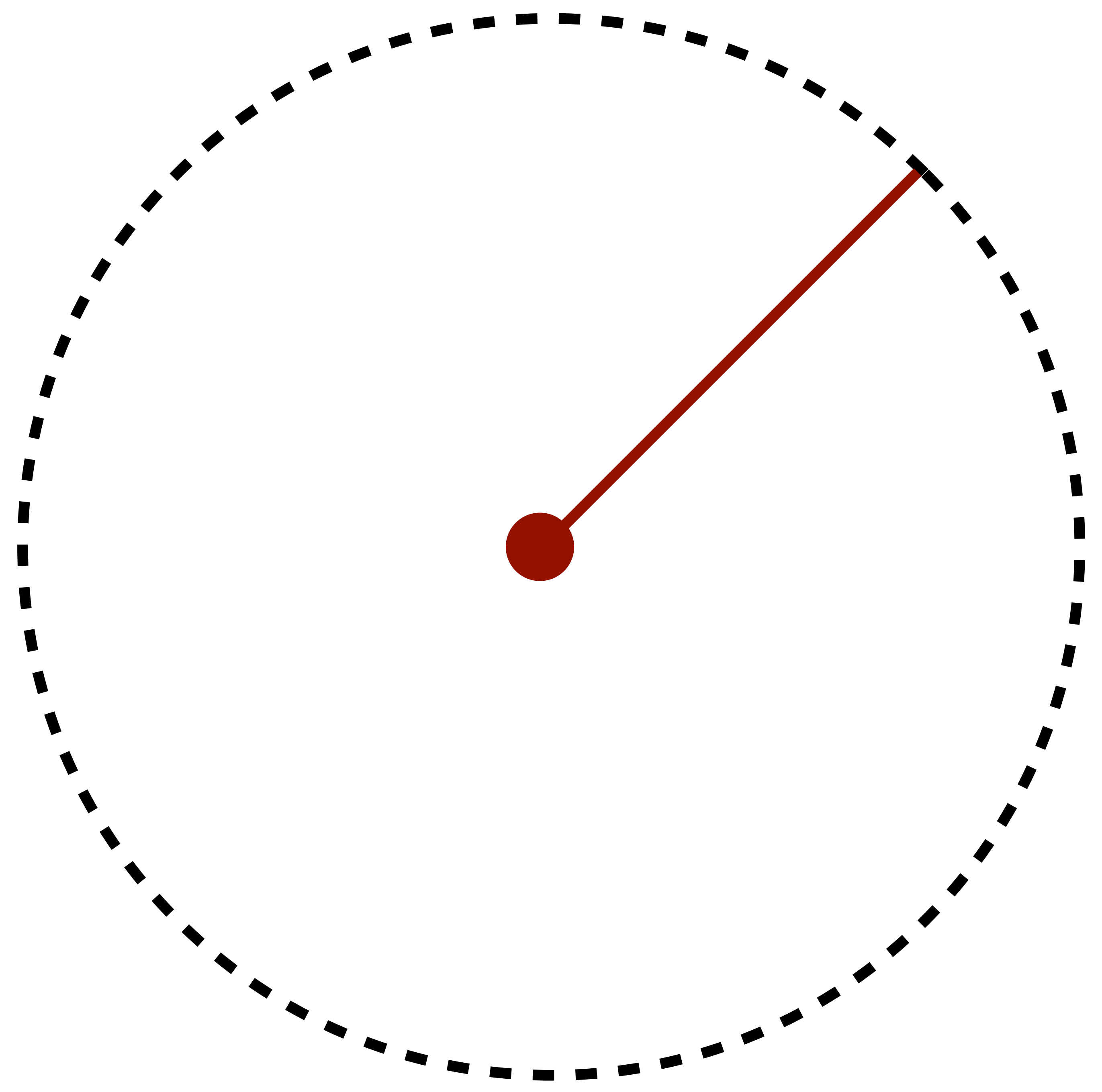
ax·i·om

a statement or proposition which is regarded as being established, accepted, or self-evidently true it is possible to draw a straight line from any point to any other point.



it is possible to describe a circle with any center and any radius

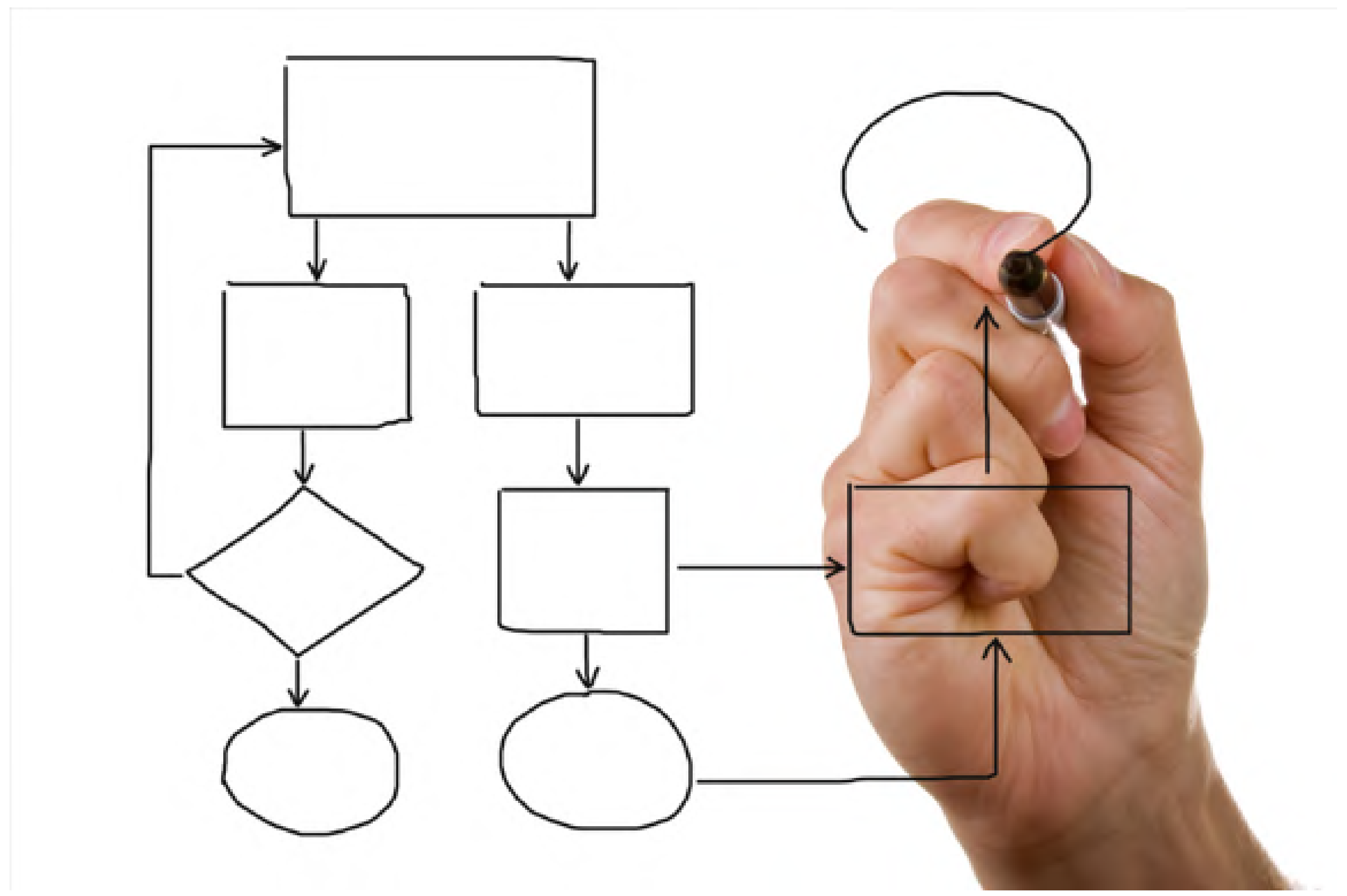


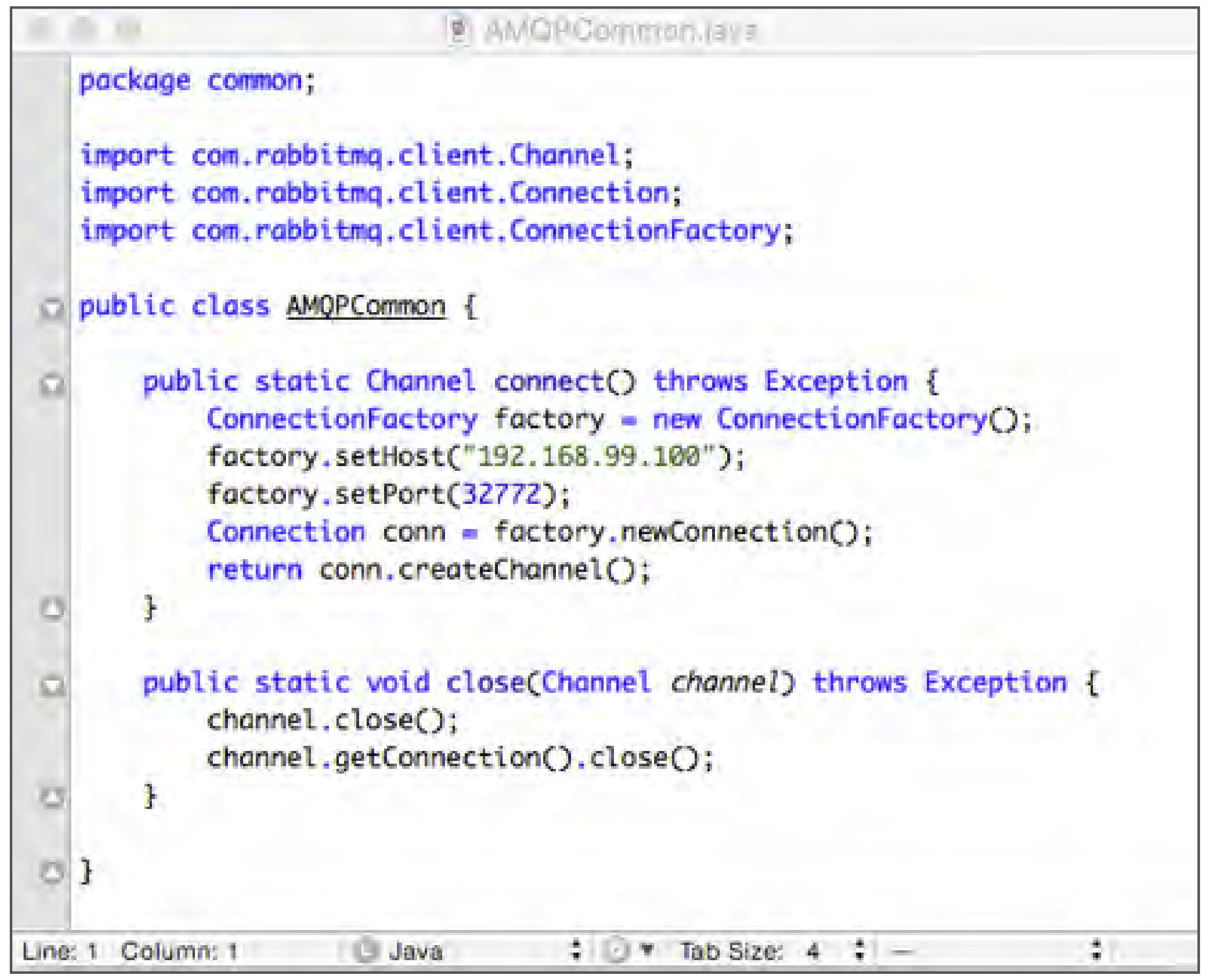
(axiom of extensionality)

given any set A and any set B, if for every set X, X is a member of A if and only if X is a member of B, then A is equal to B.

$$\forall A\,\forall B\,(\forall X\,(X \in A \iff X \in B) \implies A = B)$$

software architecture is a separate activity from software development

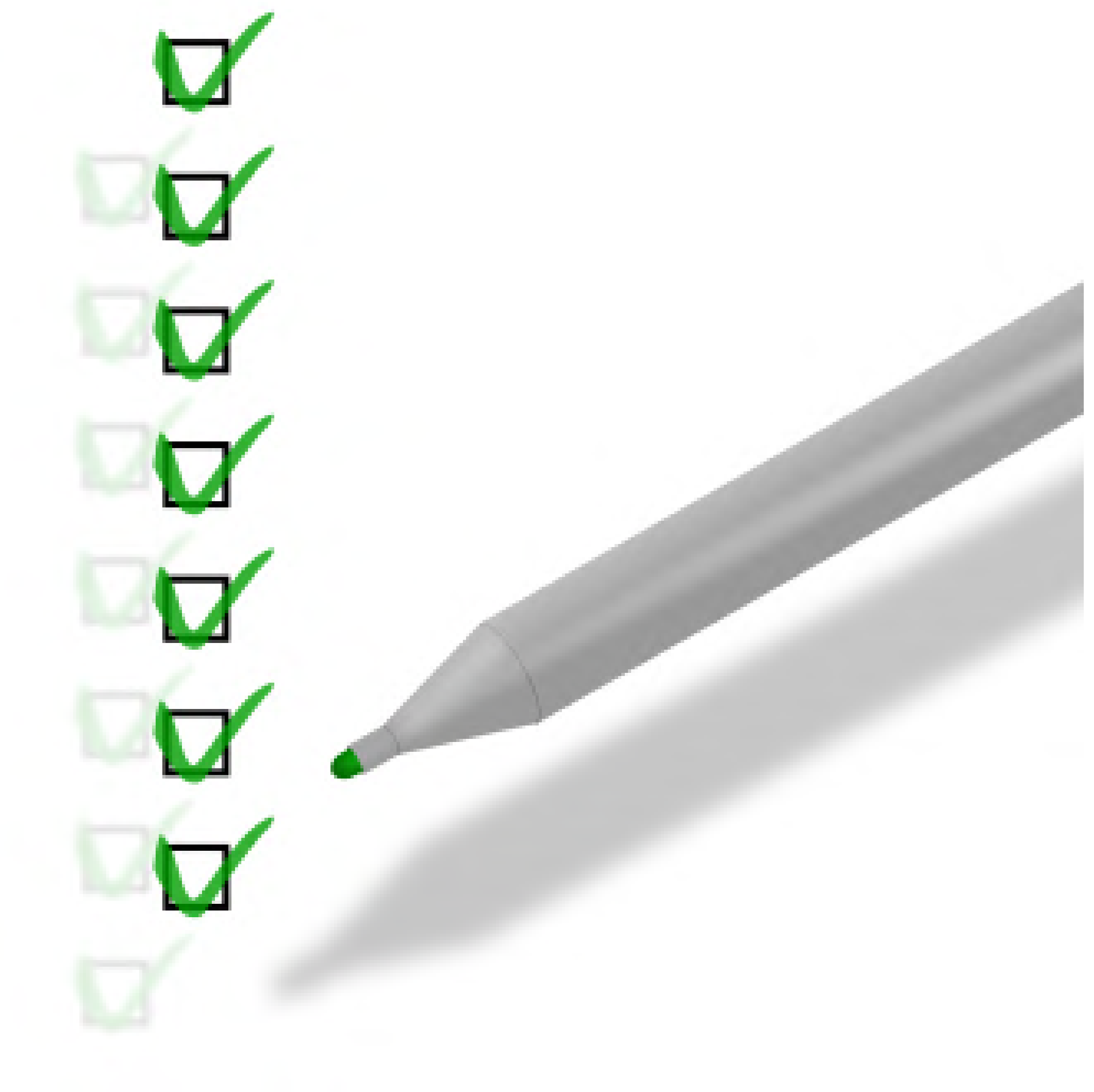




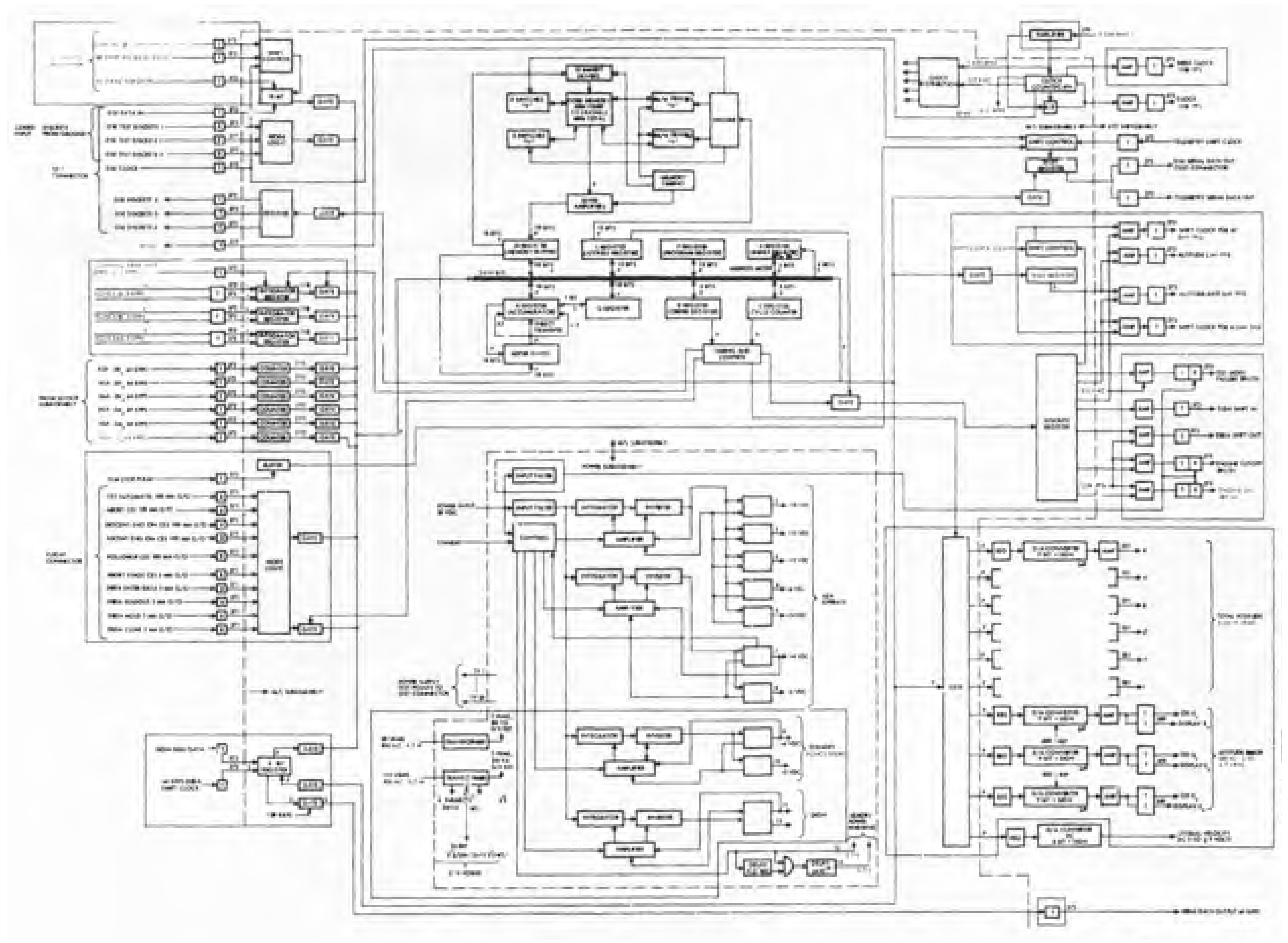
```
package common;

import com.rabbitmq.client.Channel;
import com.rabbitmq.client.Connection;
import com.rabbitmq.client.ConnectionFactory;

public class AMQPCommon {

    public static Channel connect() throws Exception {
        ConnectionFactory factory = new ConnectionFactory();
        factory.setHost("192.168.99.100");
        factory.setPort(32772);
        Connection conn = factory.newConnection();
        return conn.createChannel();
    }

    public static void close(Channel channel) throws Exception {
        channel.close();
        channel.getConnection().close();
    }

}
```

Line: 1 Column: 1 Java Tab Size: 4

software architects should adopt and follow best practices in software architecture



software architecture is the stuff that's hard to change later



software architecture is a separate activity from software development

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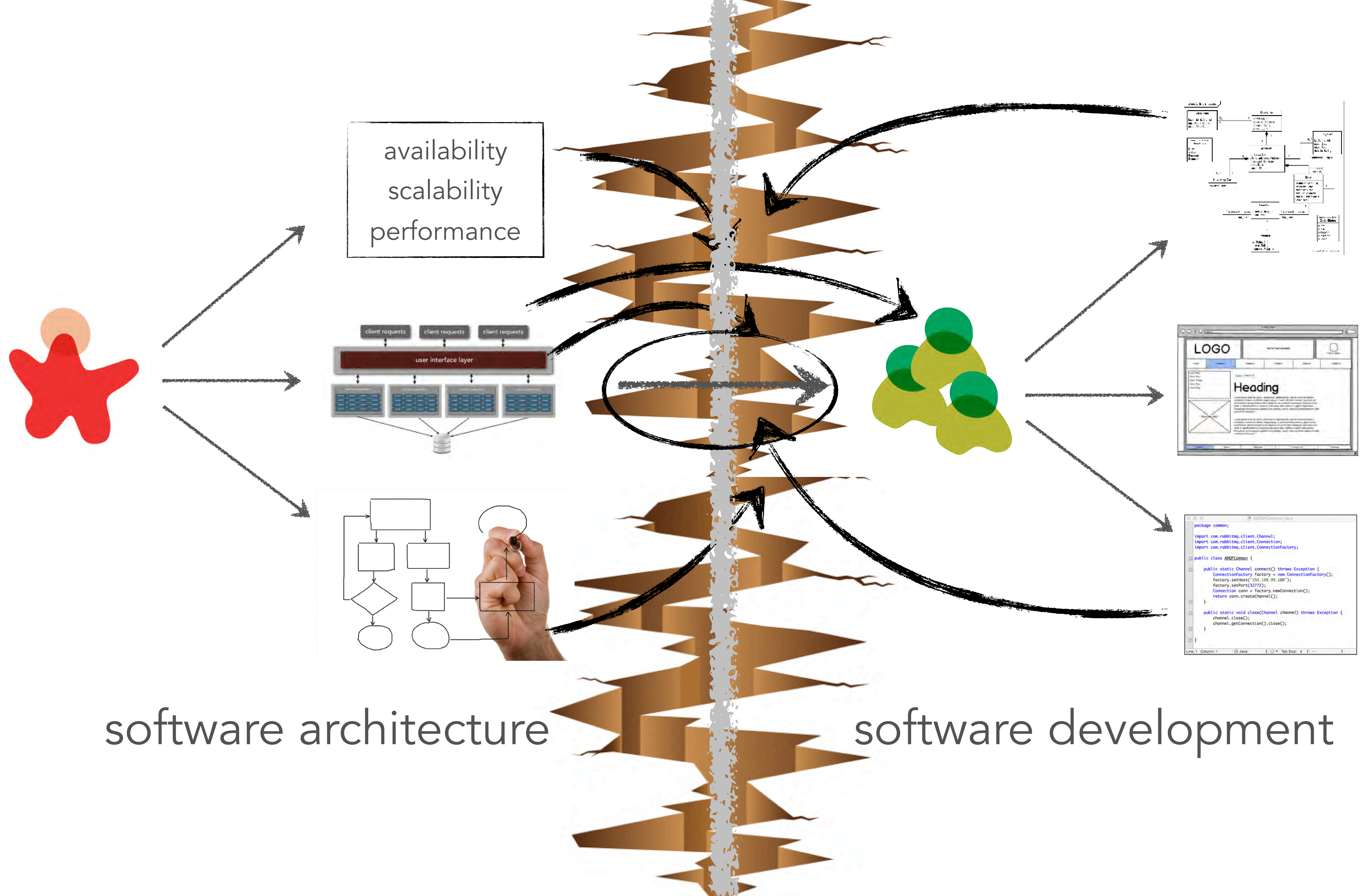

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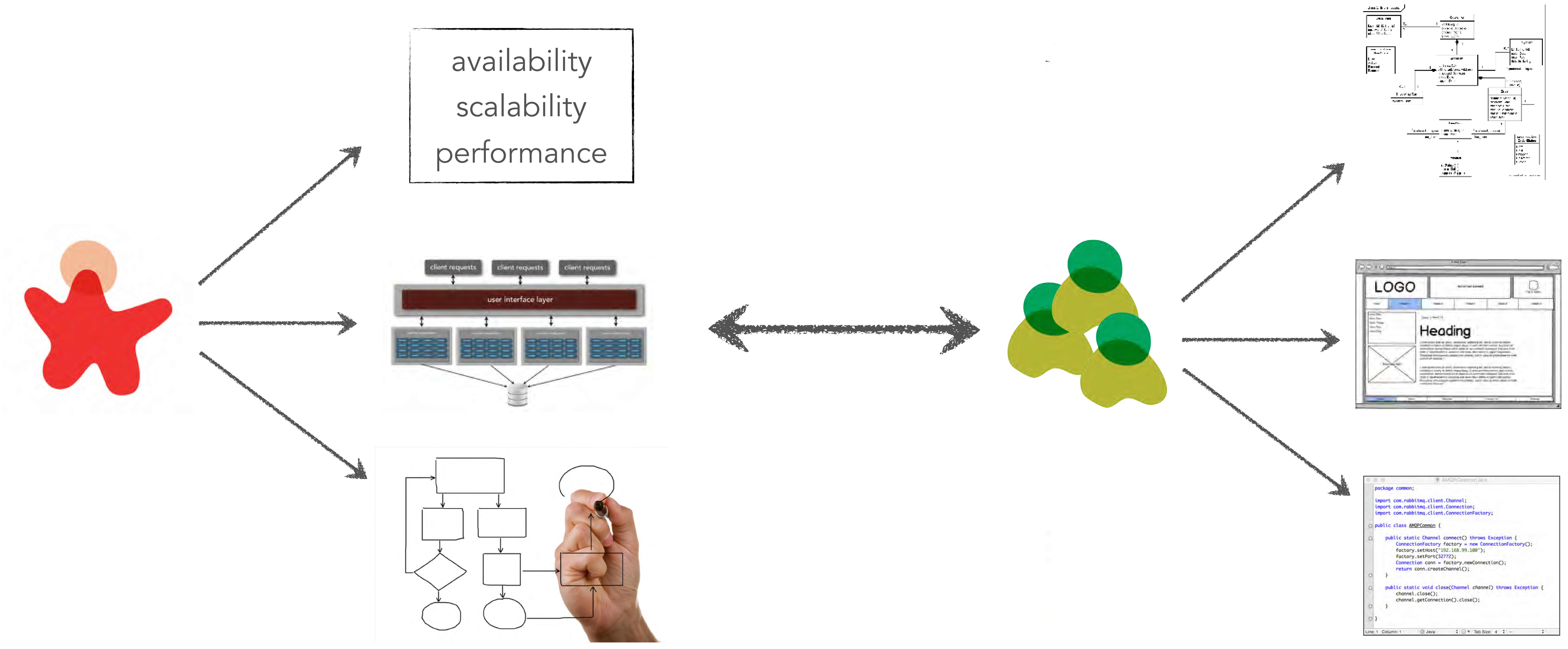
software architecture

software development



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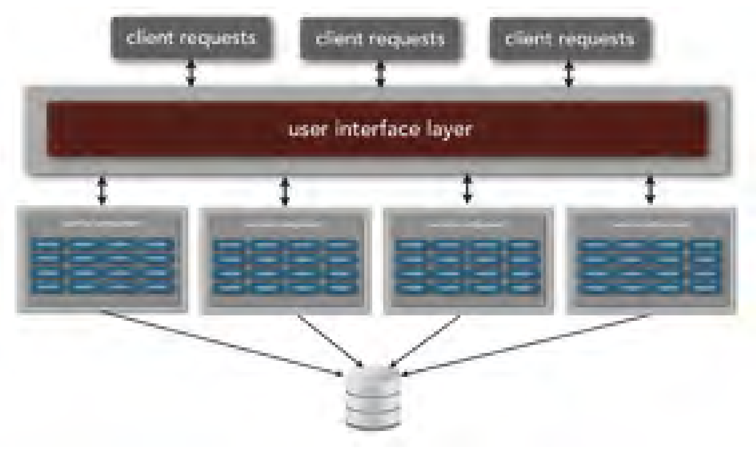
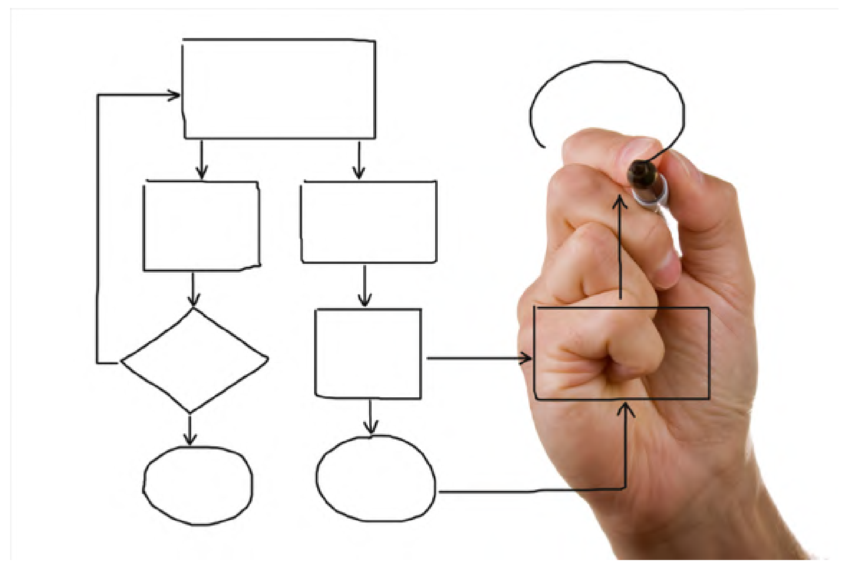
software architecture

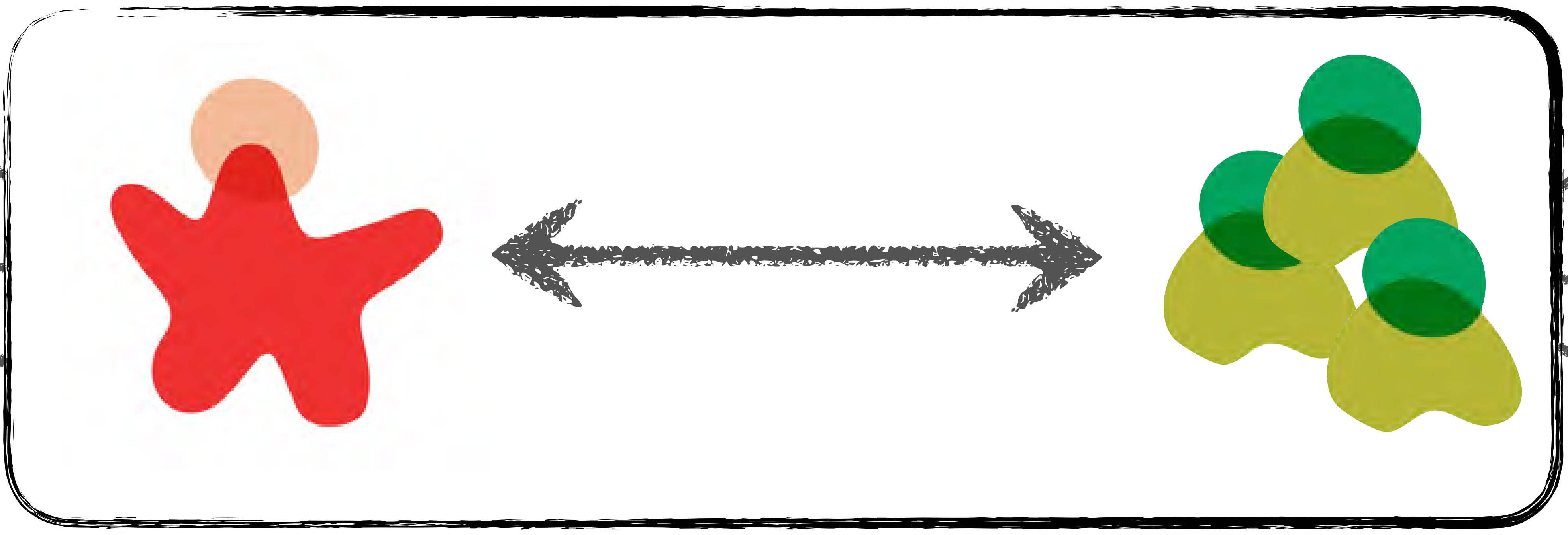
software development

availability
scalability
performance

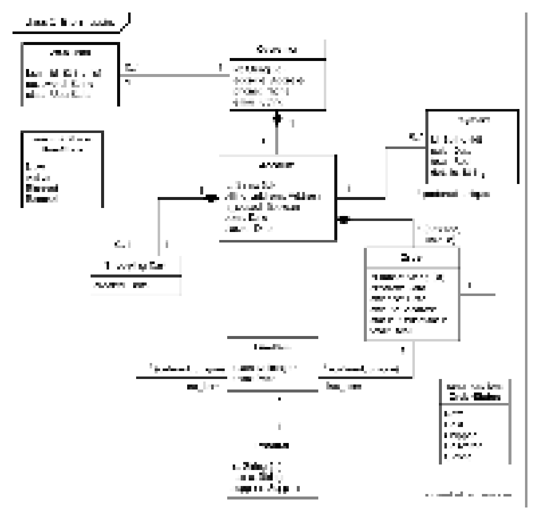


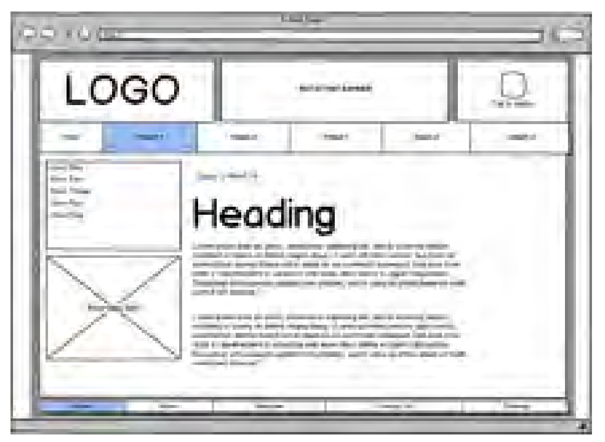


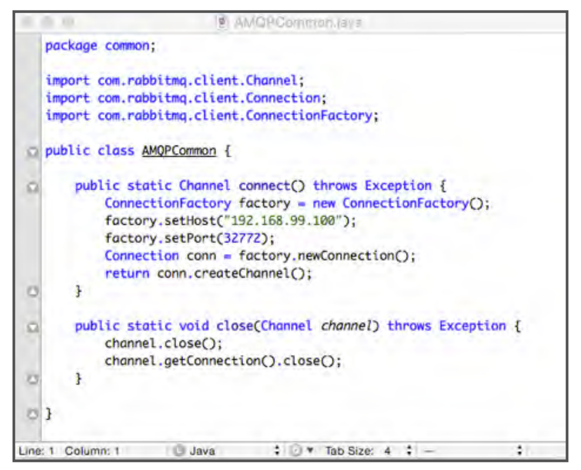
leadership



mentoring







AMQPCommon.java

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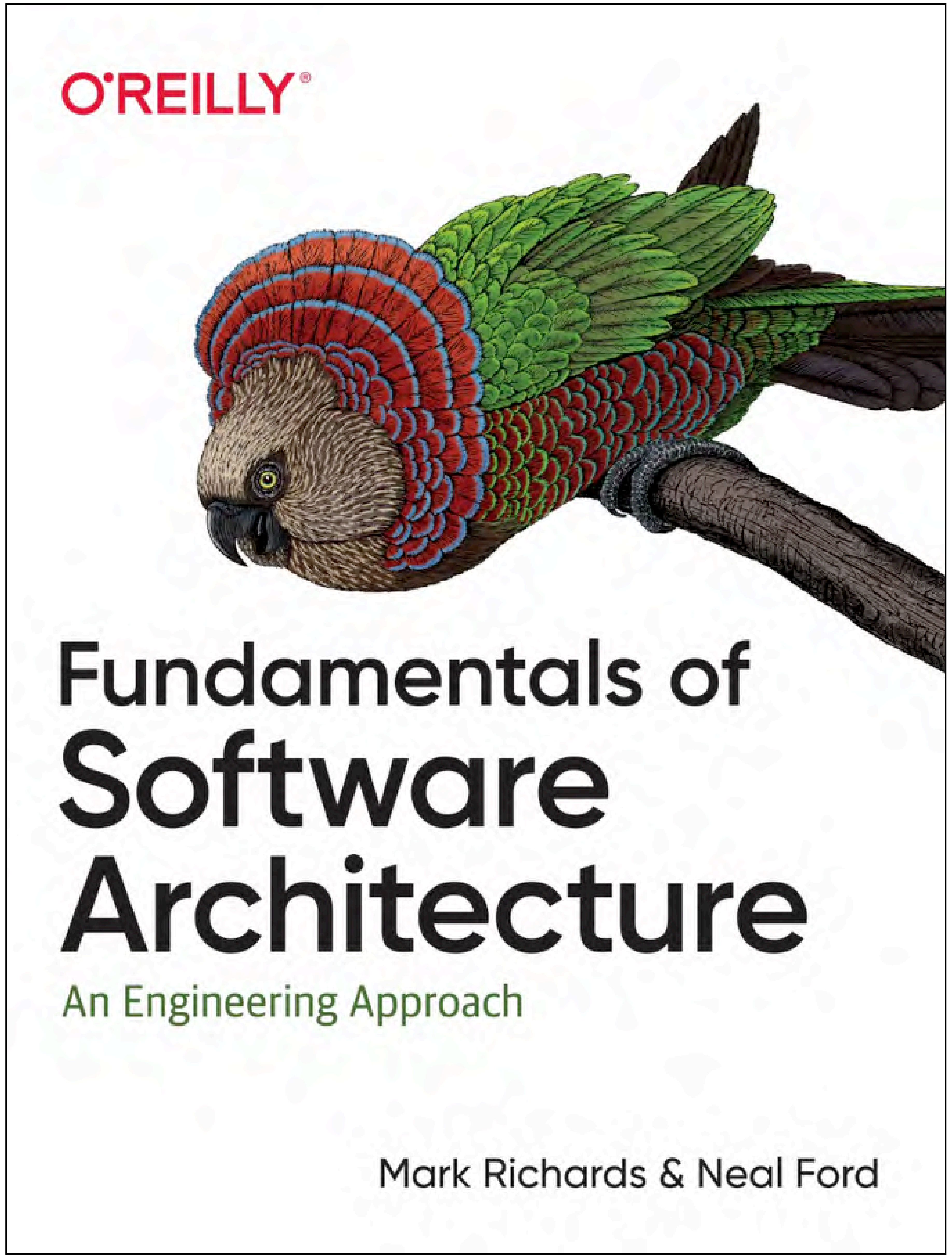
software architecture
software development



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Fundamentals of Software Architecture

An Engineering Approach

Mark Richards & Neal Ford

"Developers should never take components designed by architects as the last word. Rather, the initial design should be viewed as a first draft, where implementation will reveal more details and refinements."

software architects should adopt and follow best practices in software architecture

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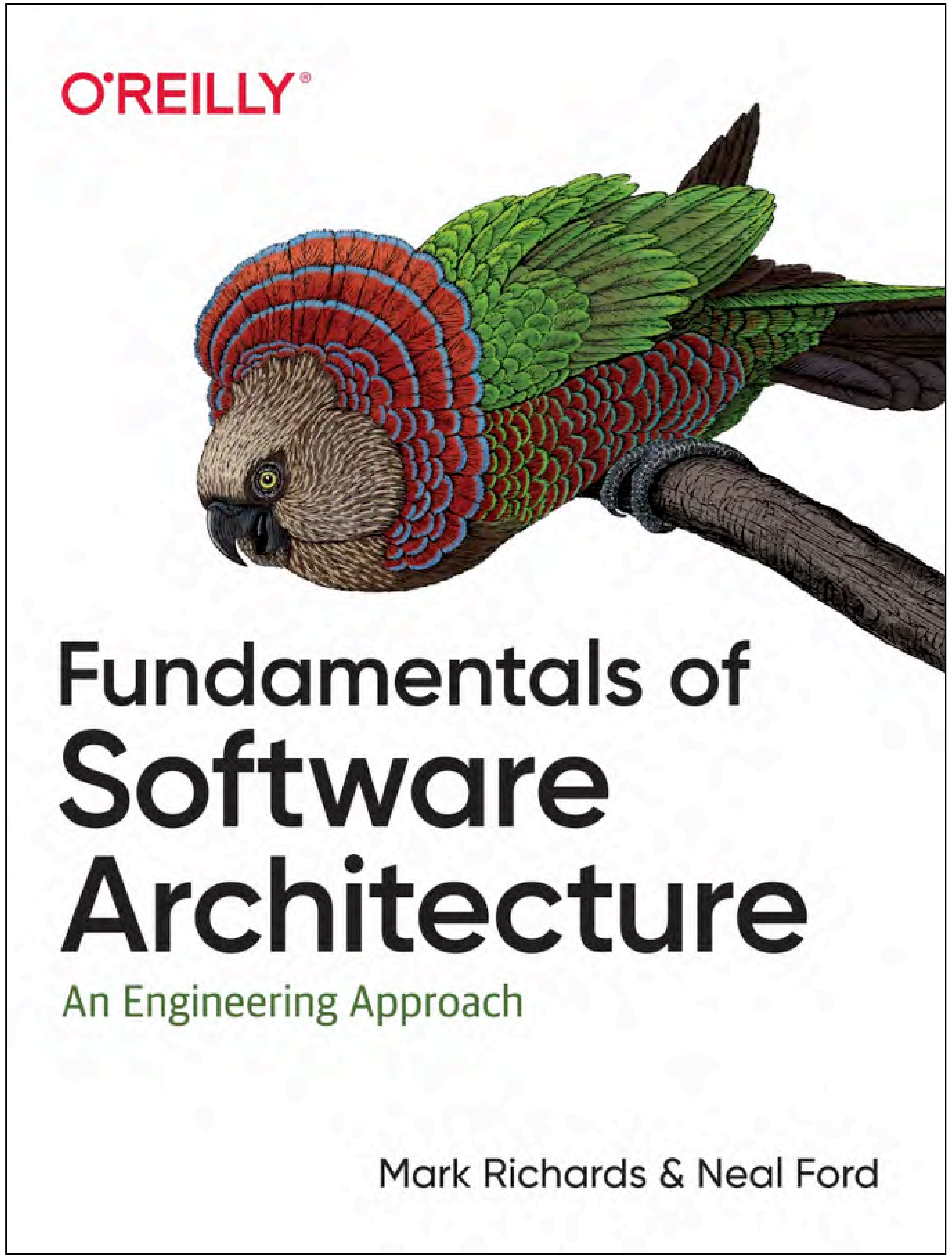
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Fundamentals of Software Architecture

An Engineering Approach

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First Law of Software Architecture

"Everything in software architecture is a trade-off"

there are no best practices!

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VISA

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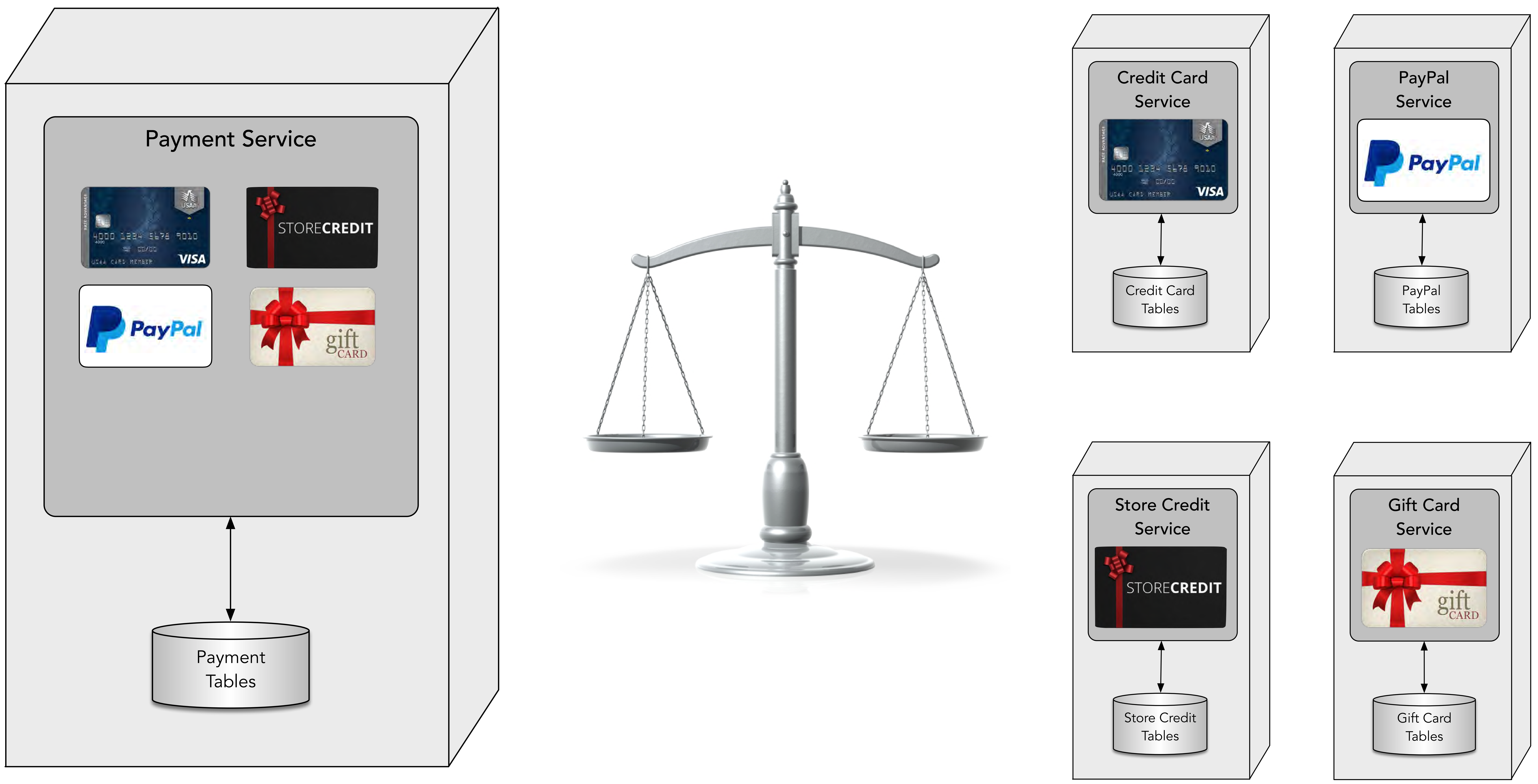
STORECREDIT

gift CARD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STORECREDIT
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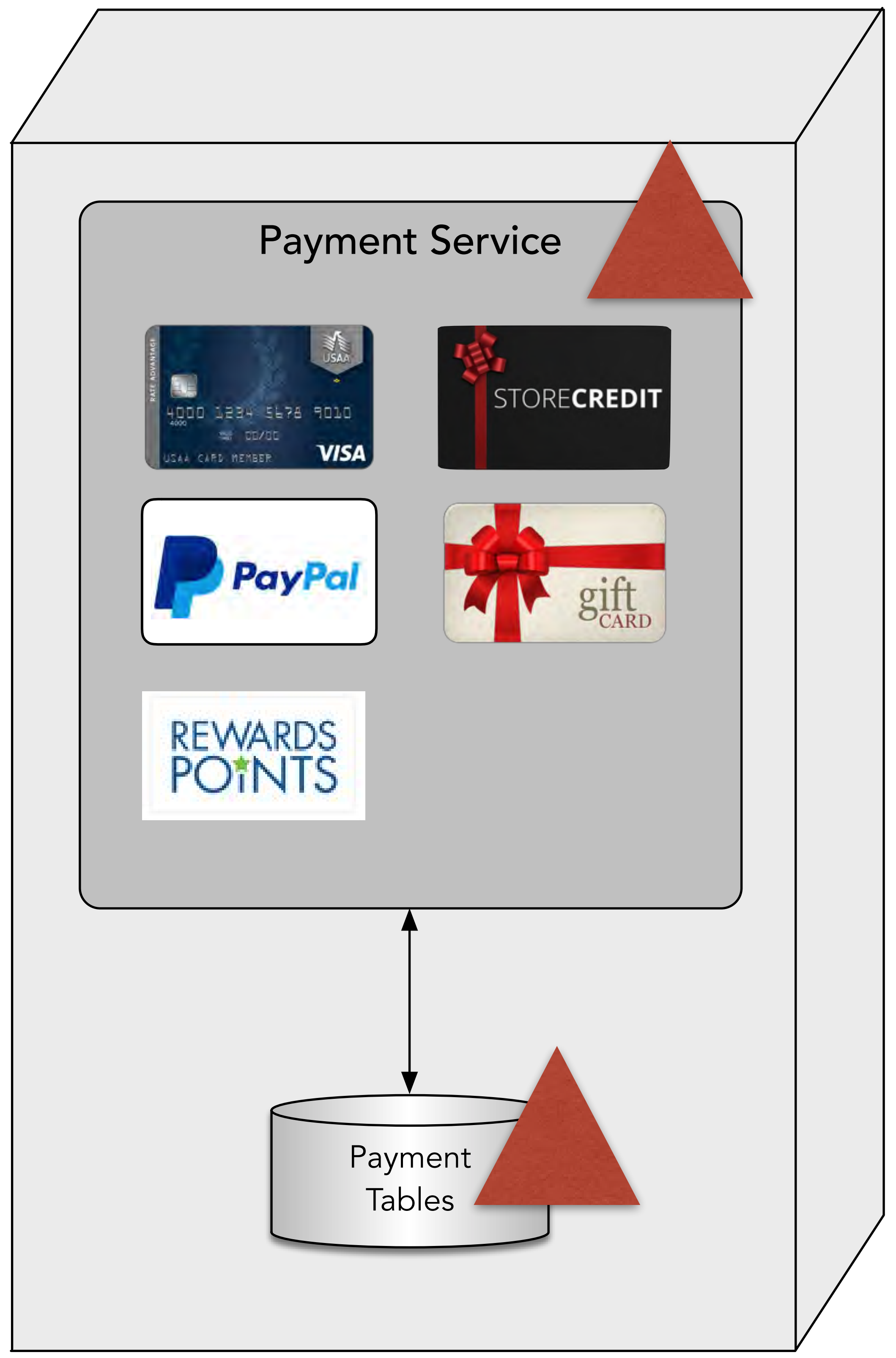
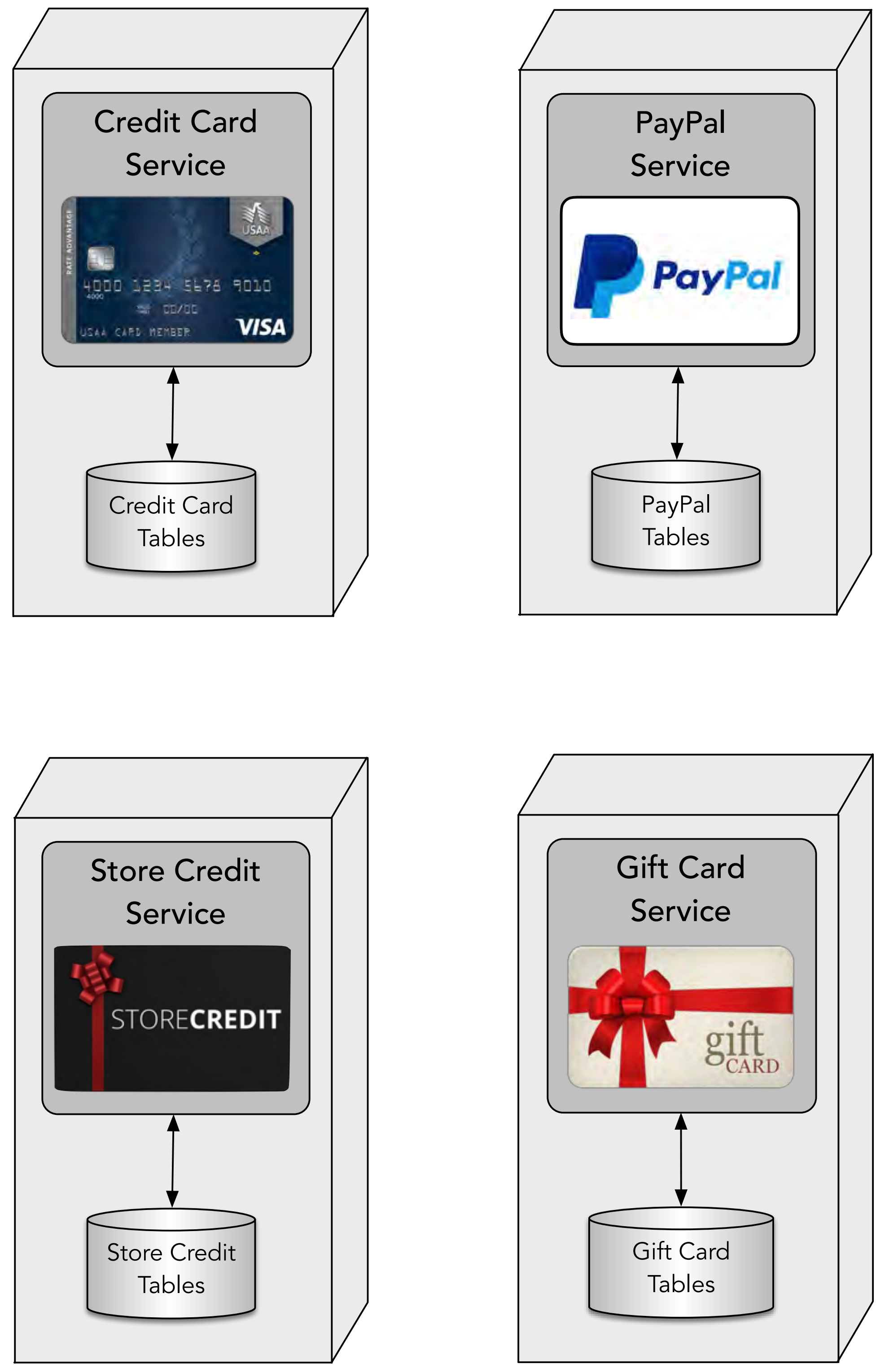
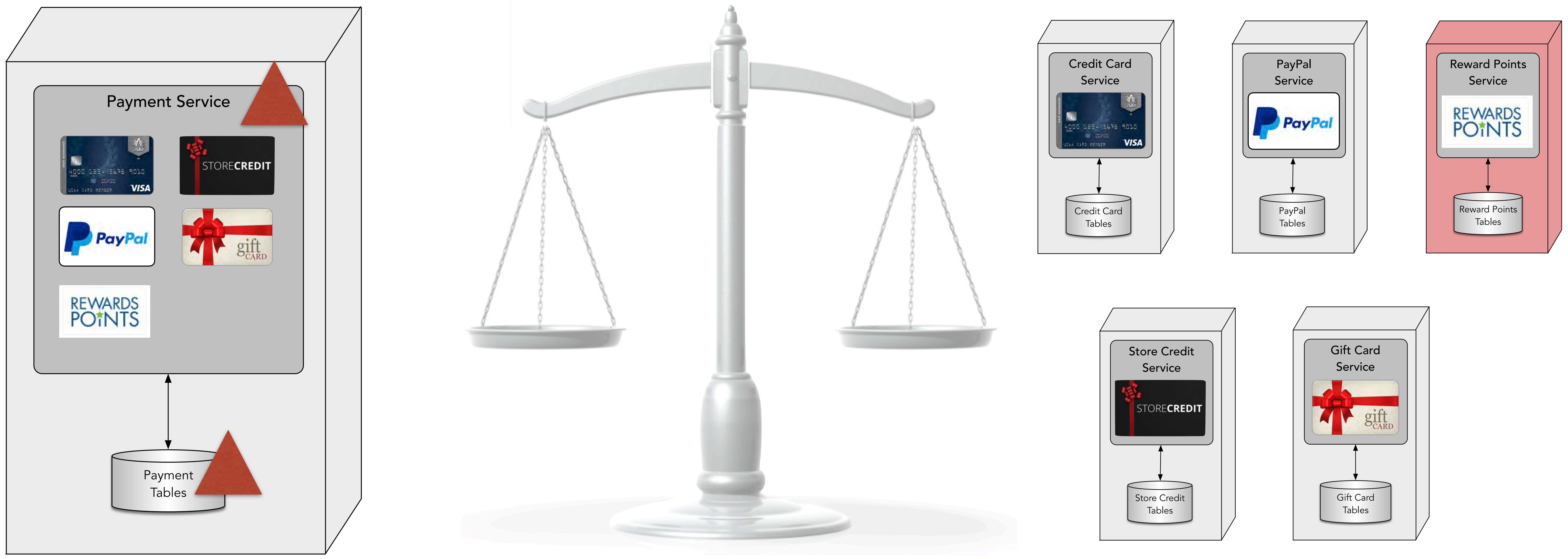




add a new feature to collect, maintain, and redeem reward points



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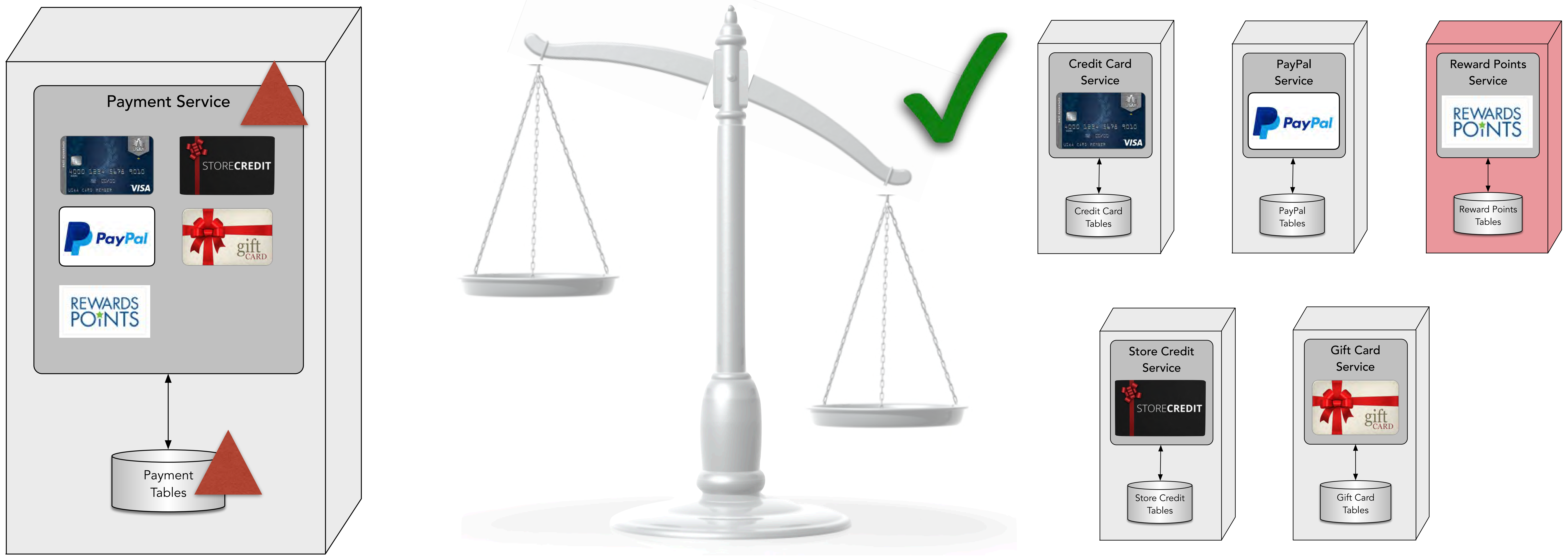

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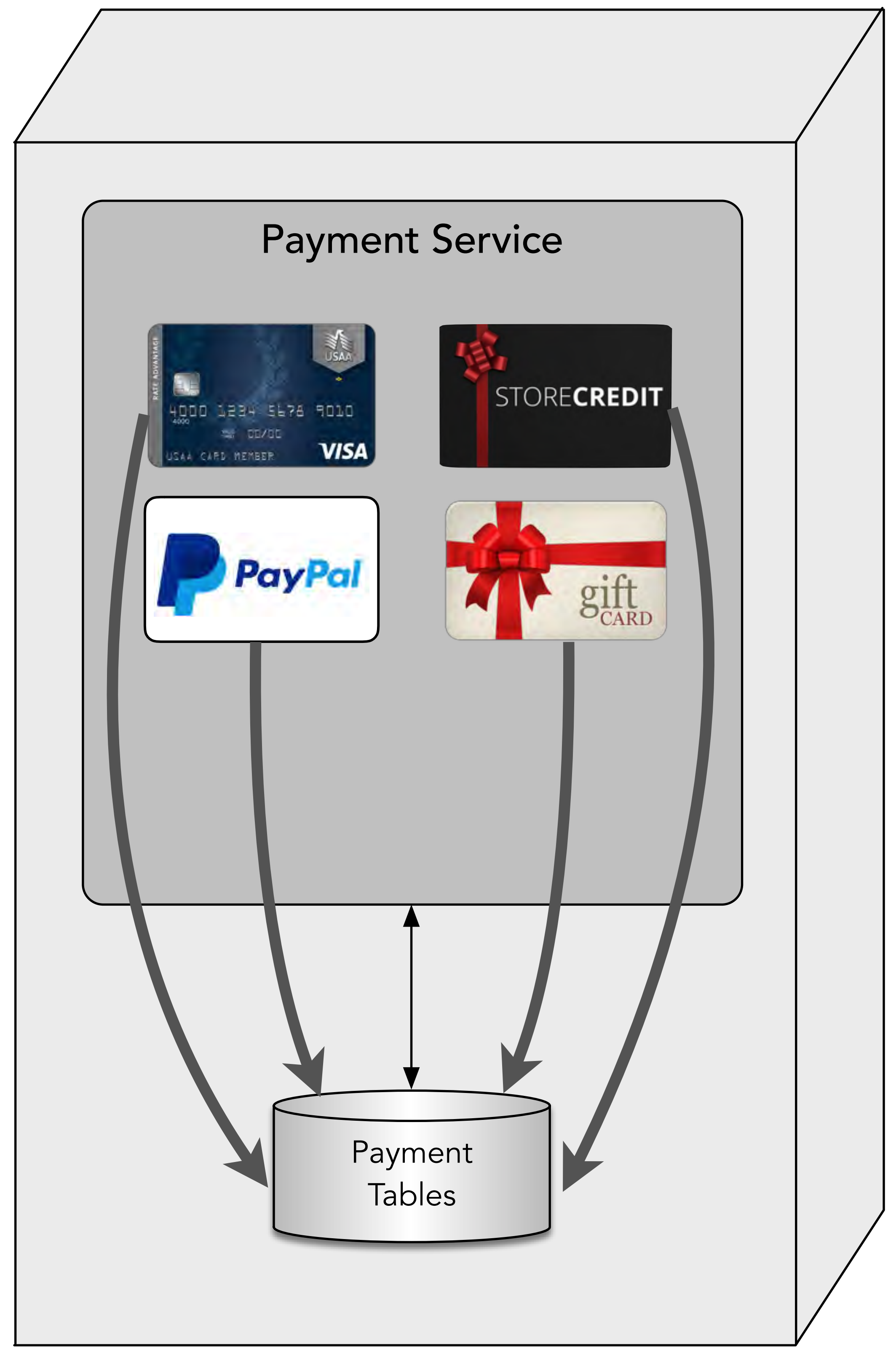
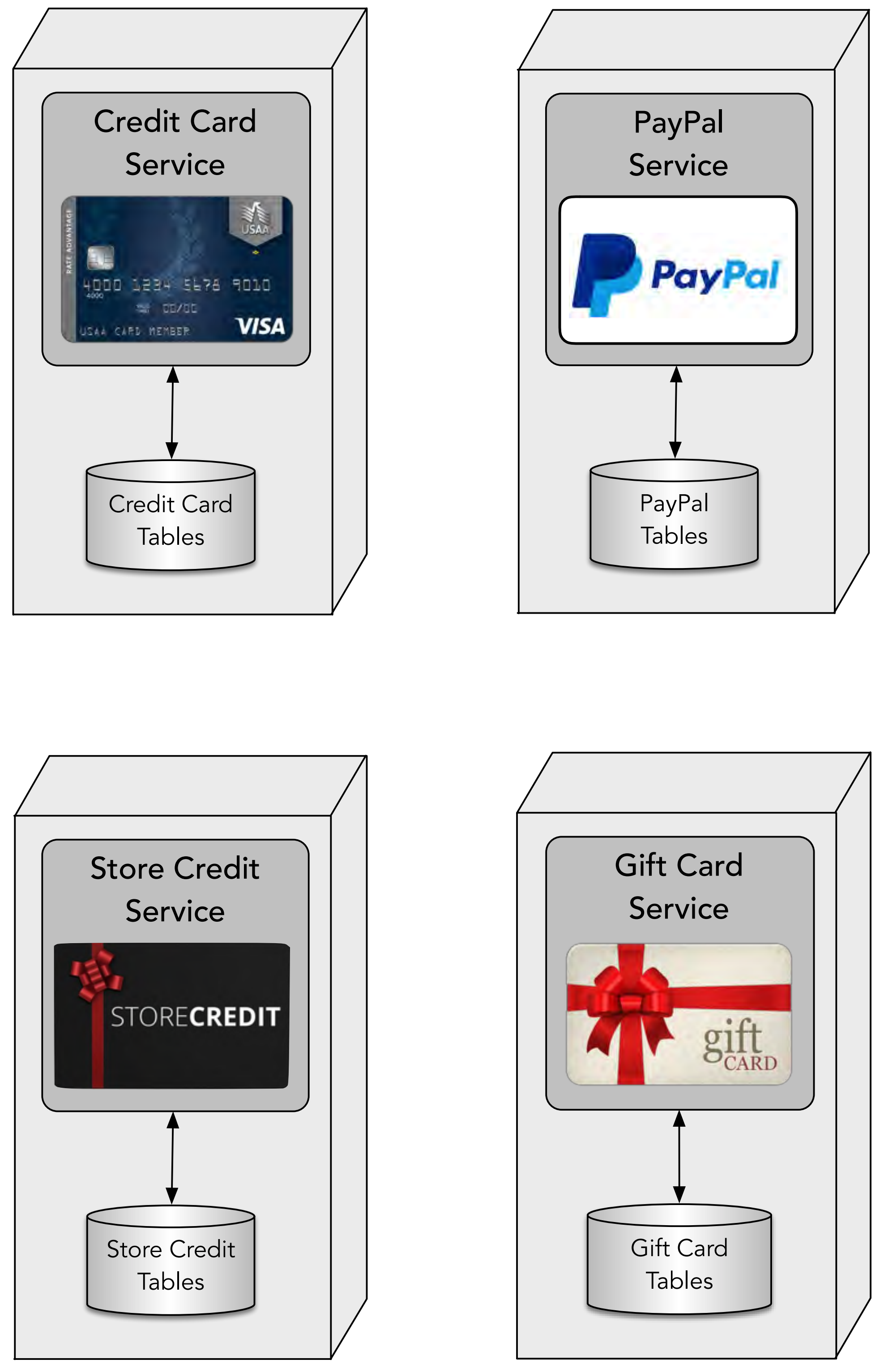
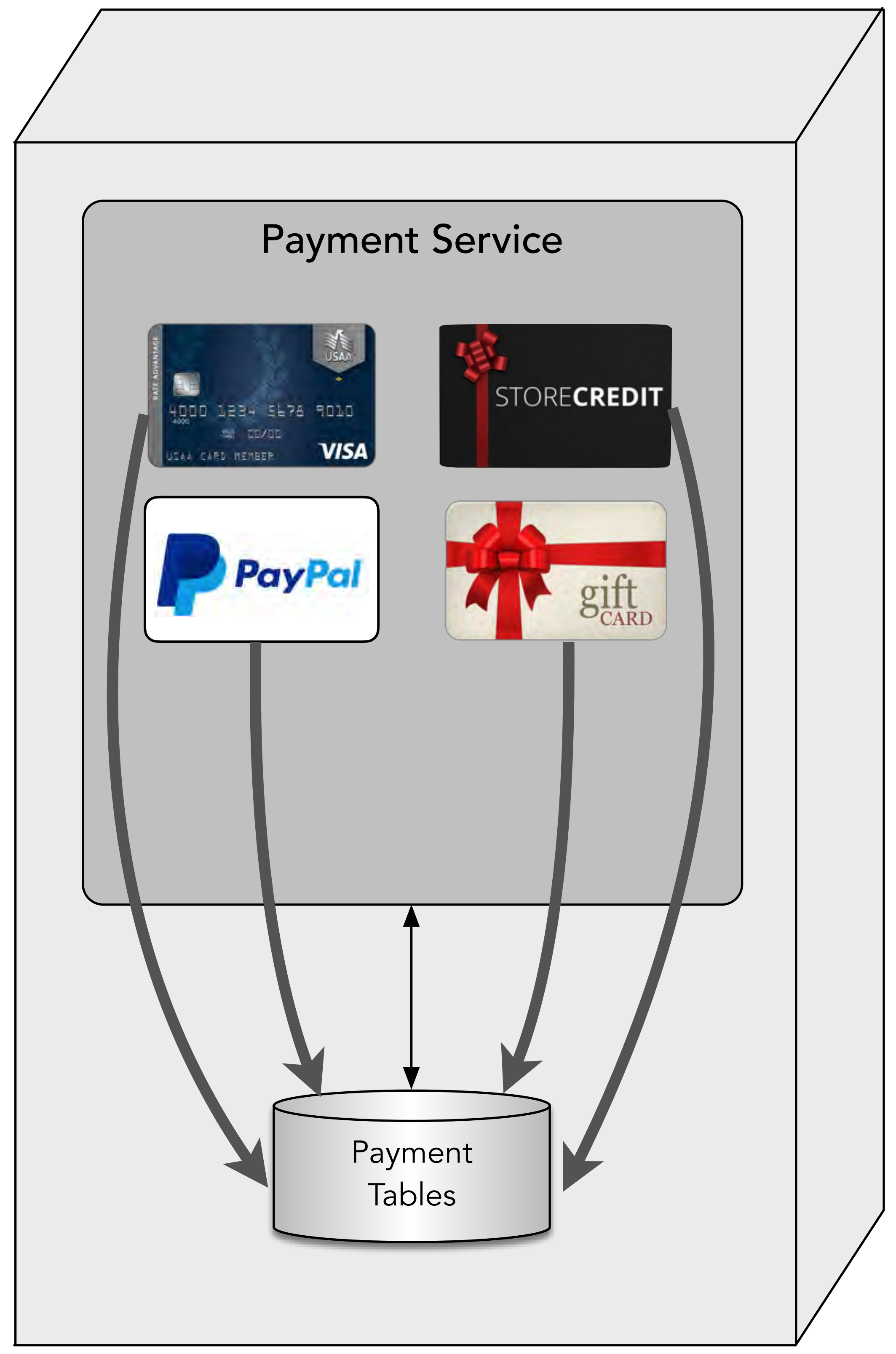
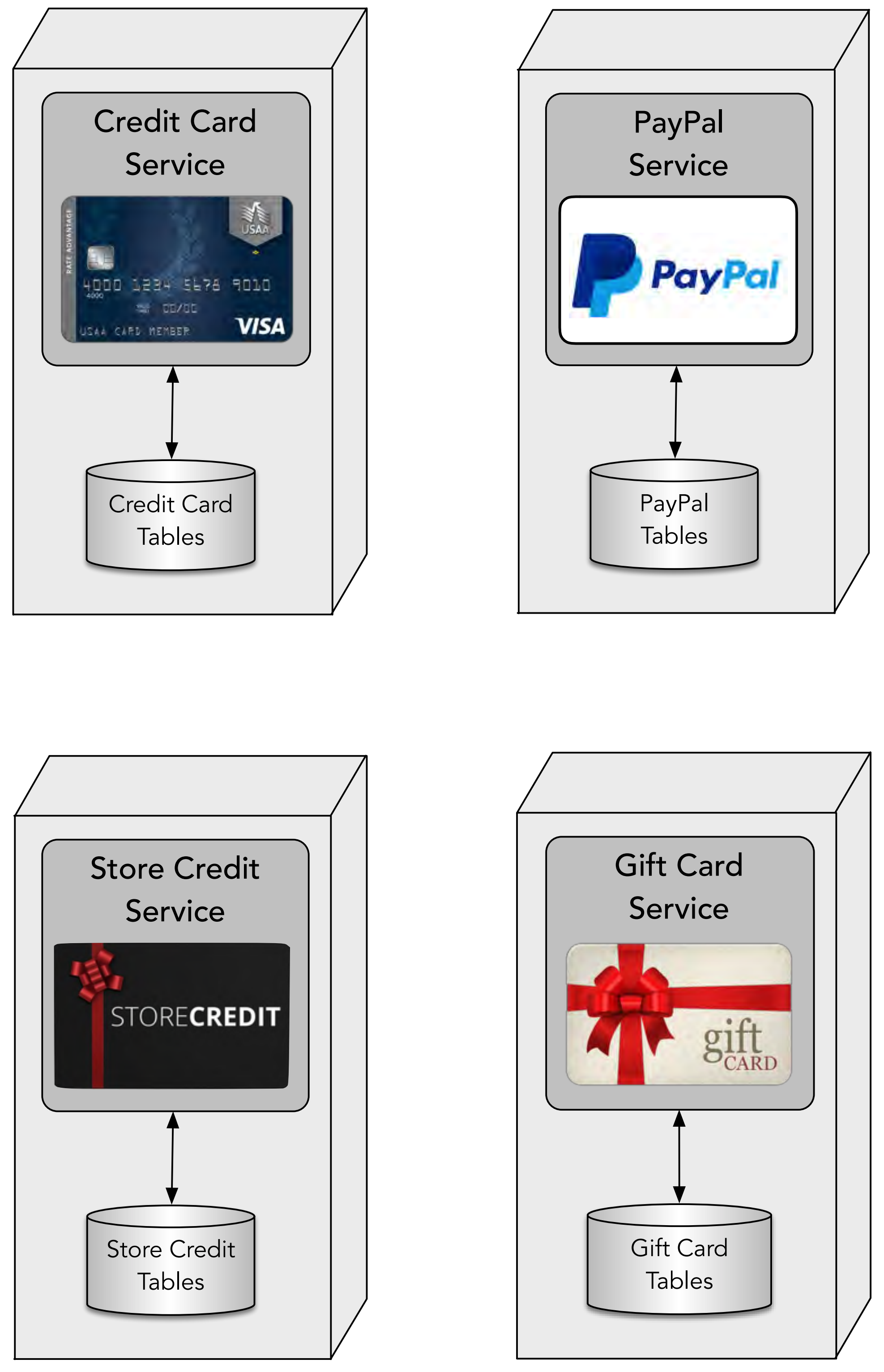




add the ability to apply multiple payment types to pay for an order





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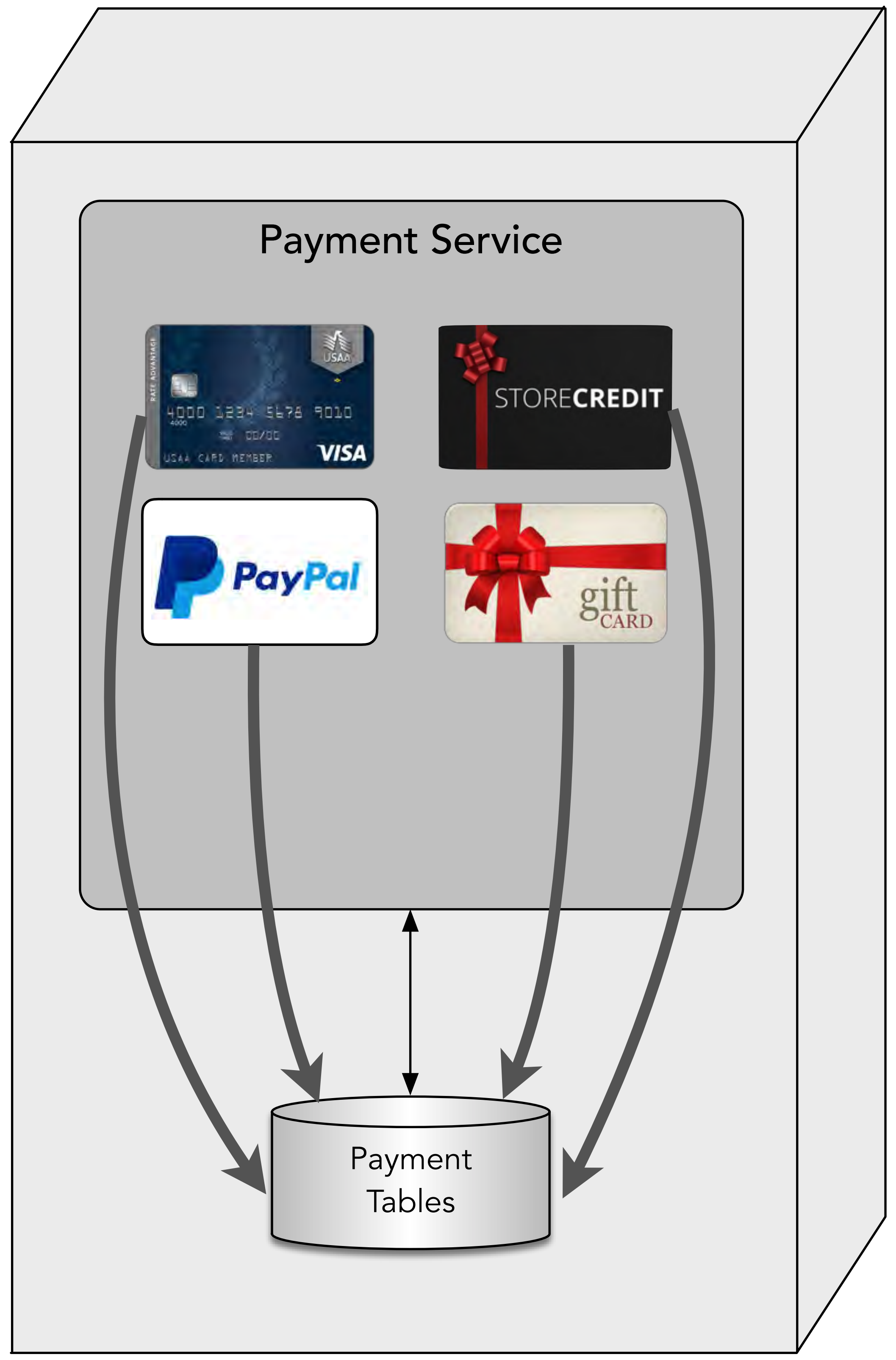

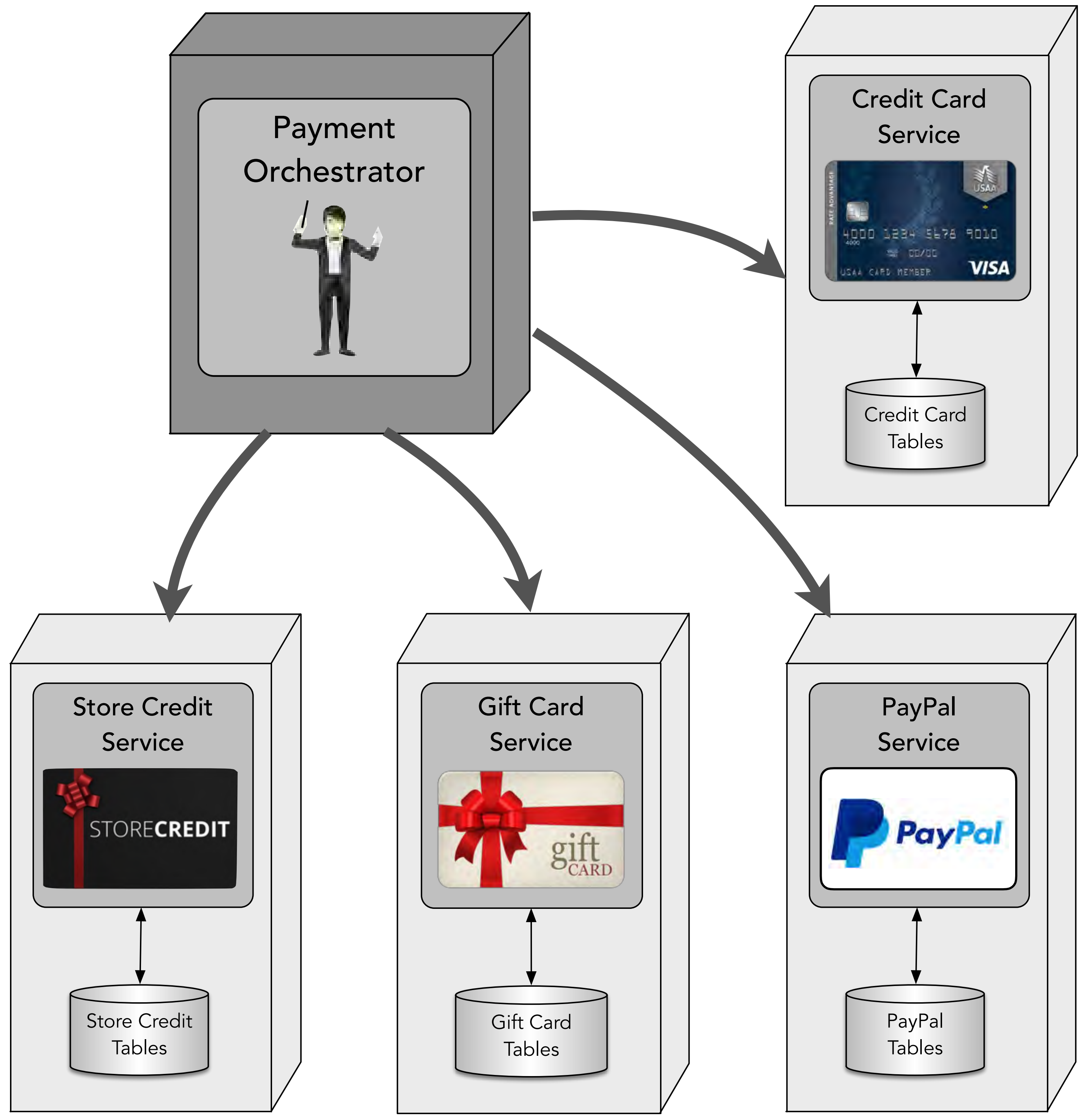

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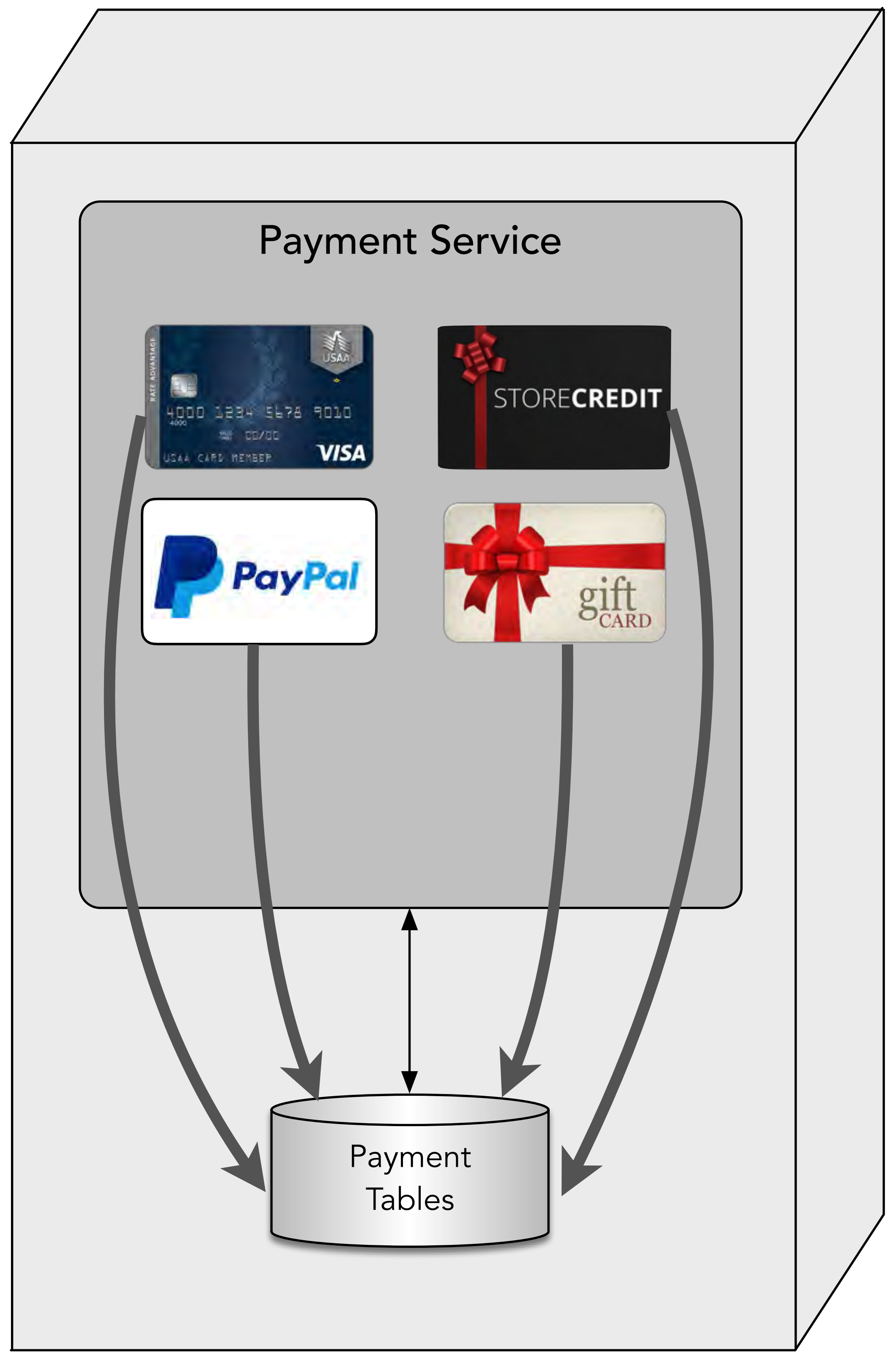

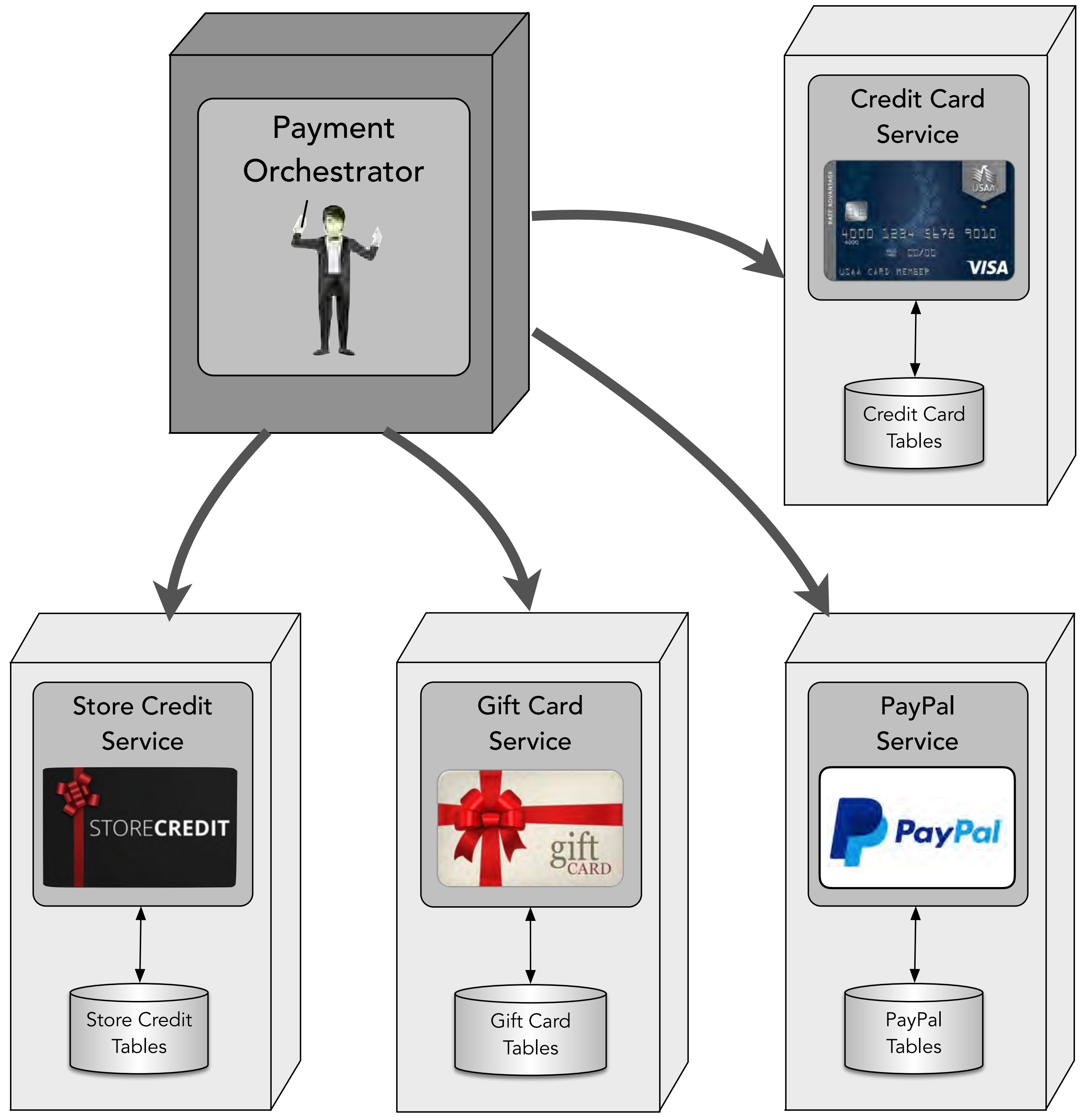

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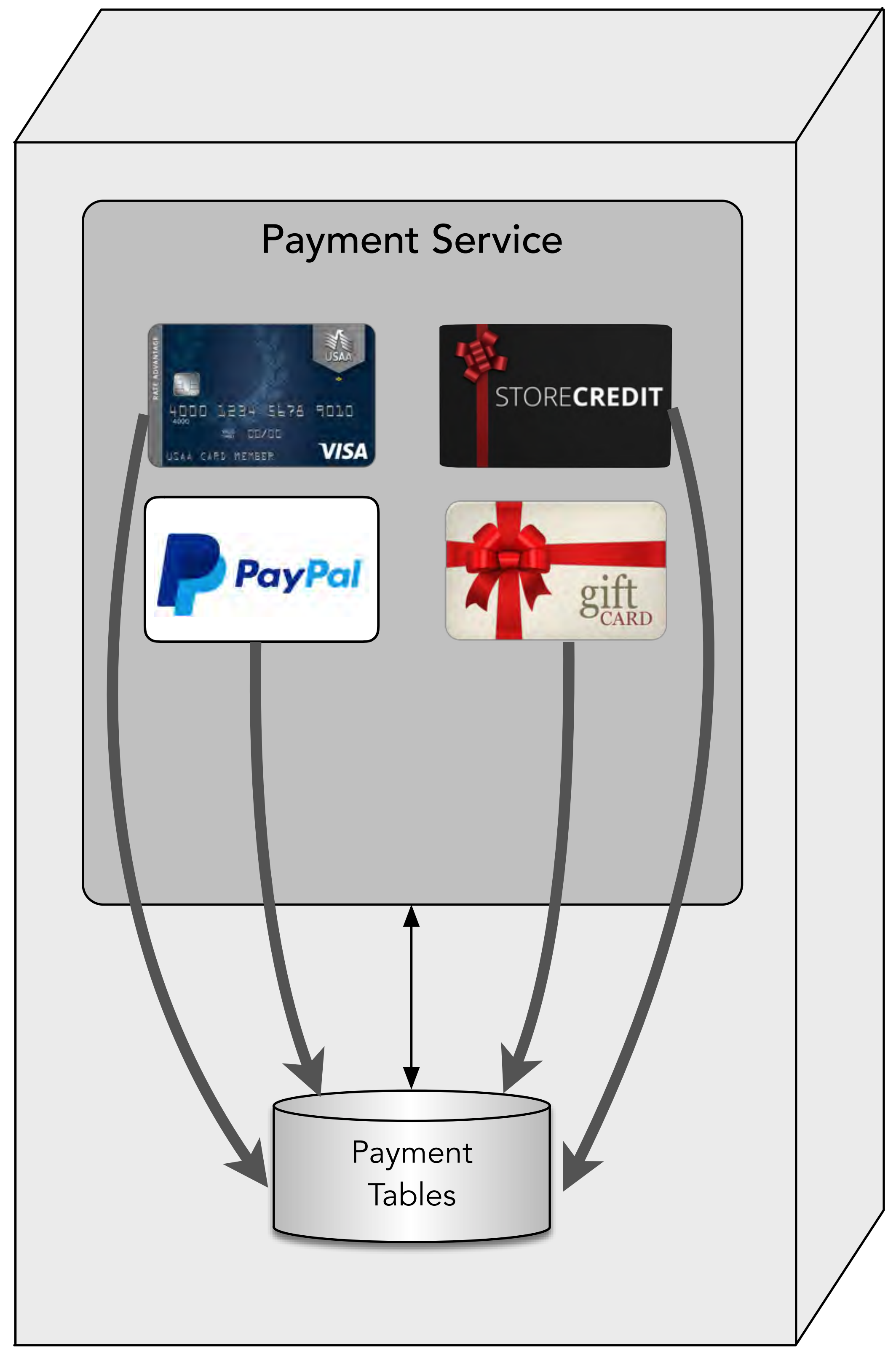

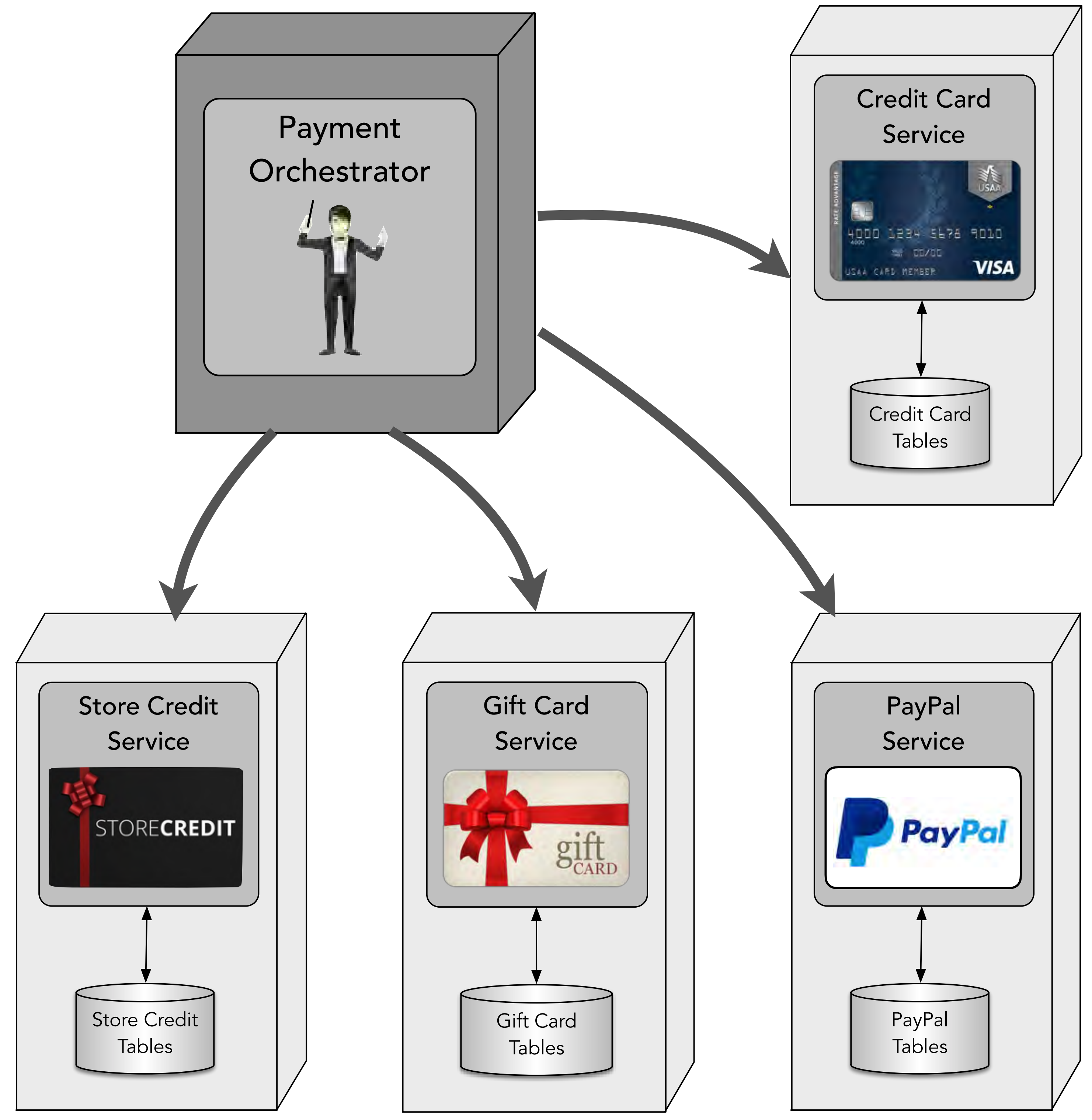

add the ability to apply multiple payment types to pay for an order

there are no best practices in software architecture - only trade-offs

software architecture is the foundational structure of a system and therefore should not undergo frequent change

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software architecture is the stuff that's hard to change later

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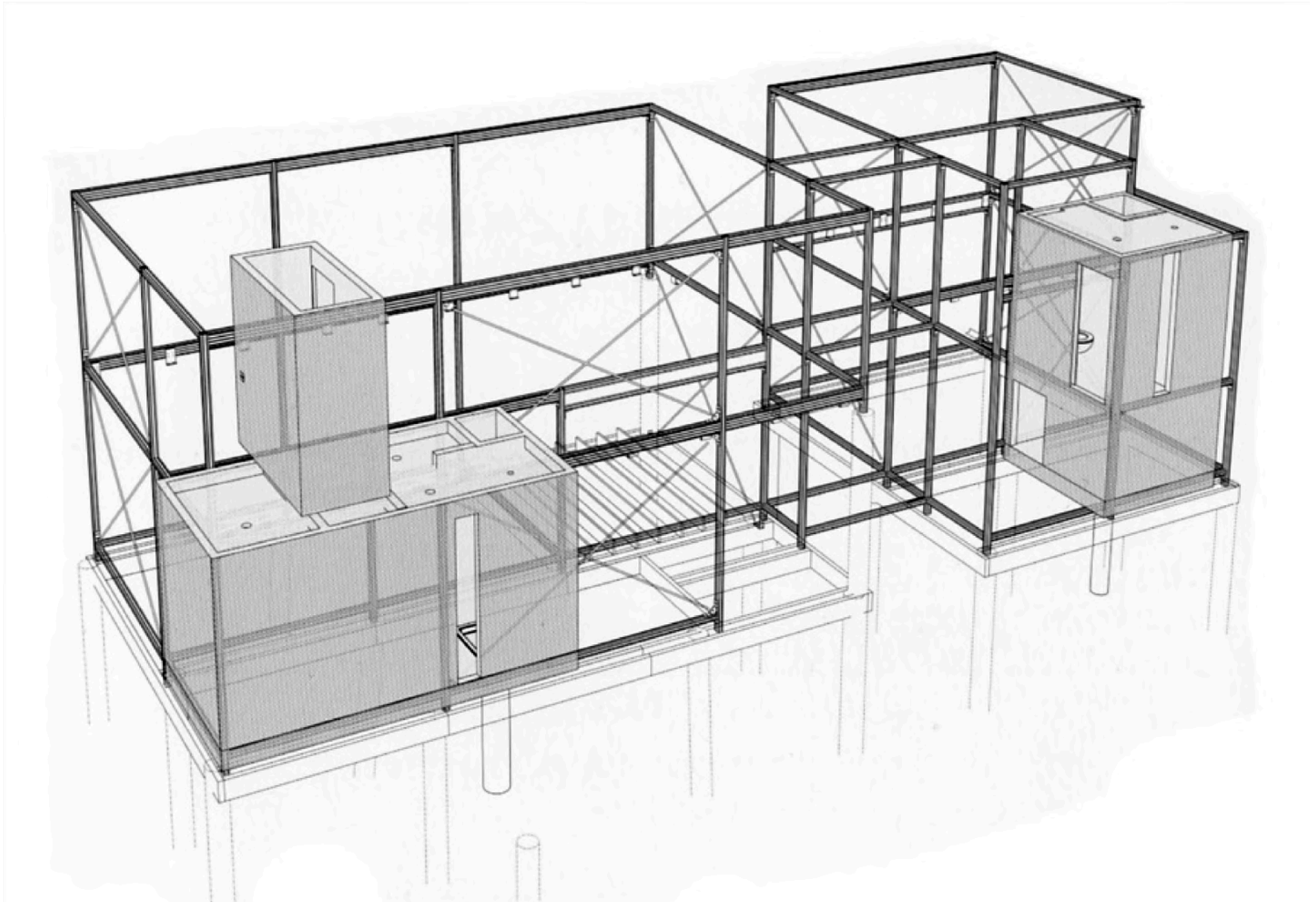
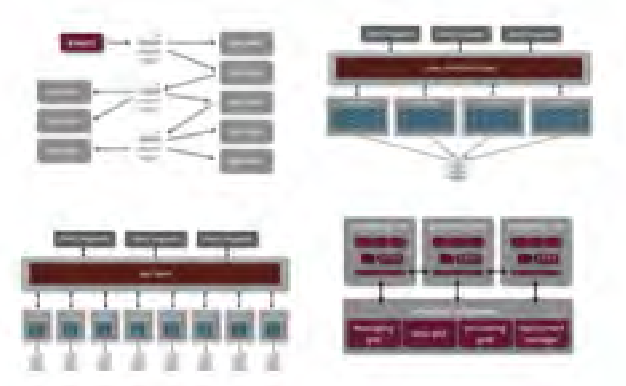
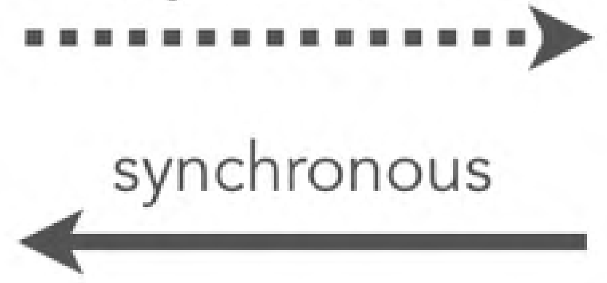
continually refactoring the architecture
means you don't know what you are doing



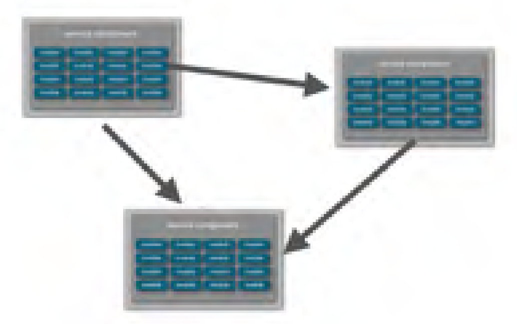
architecture



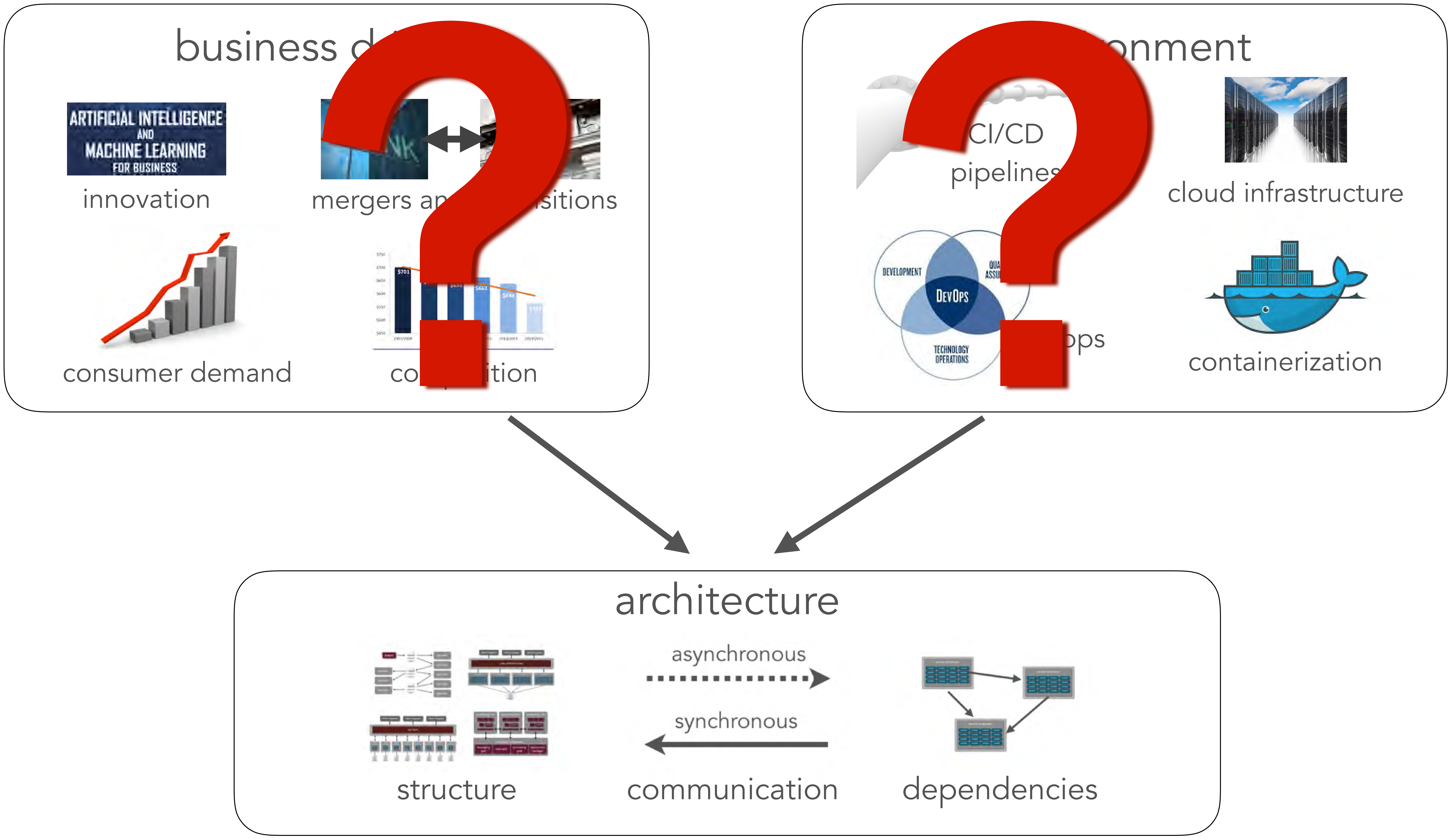
structure



communication



dependencies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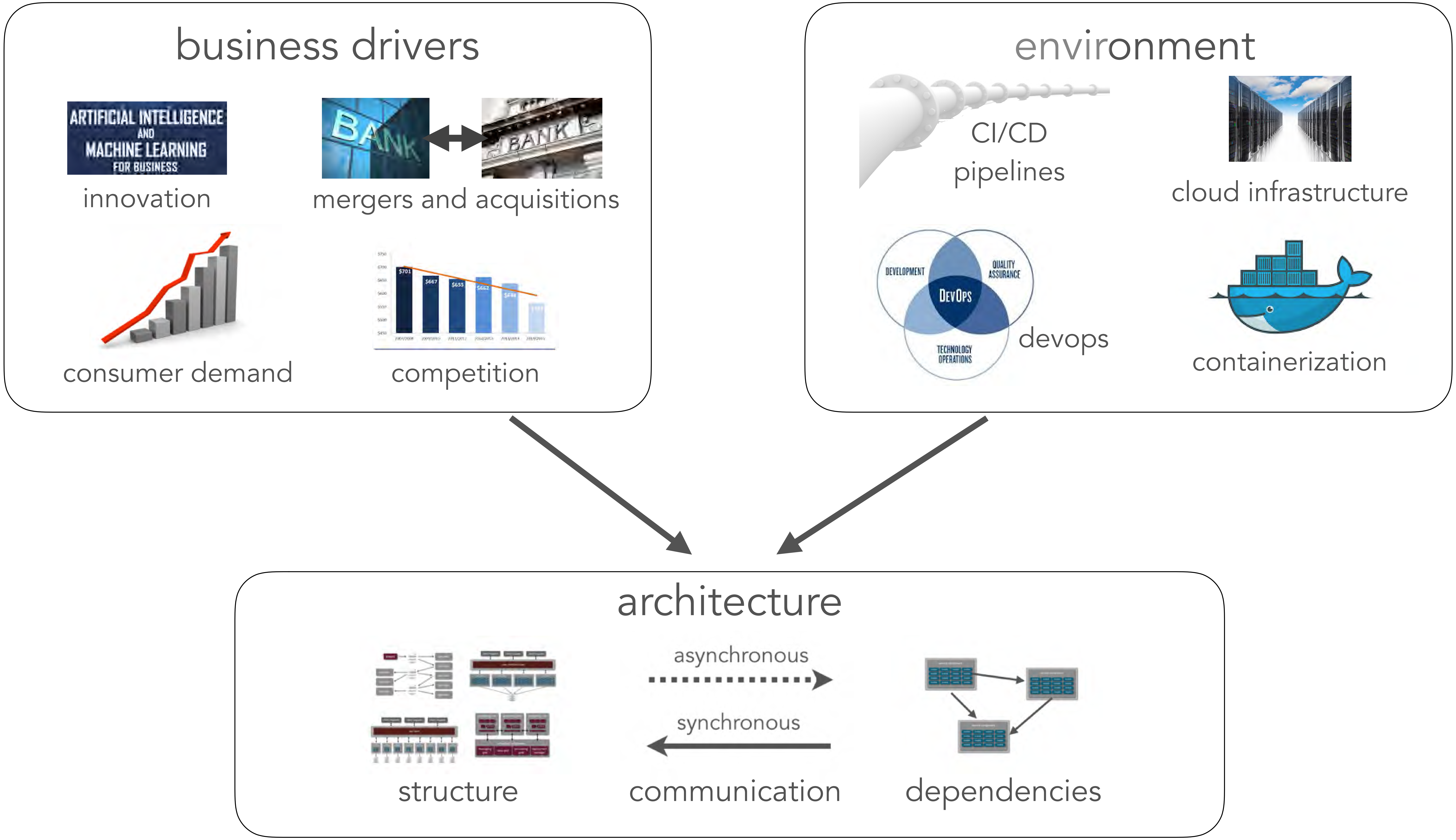
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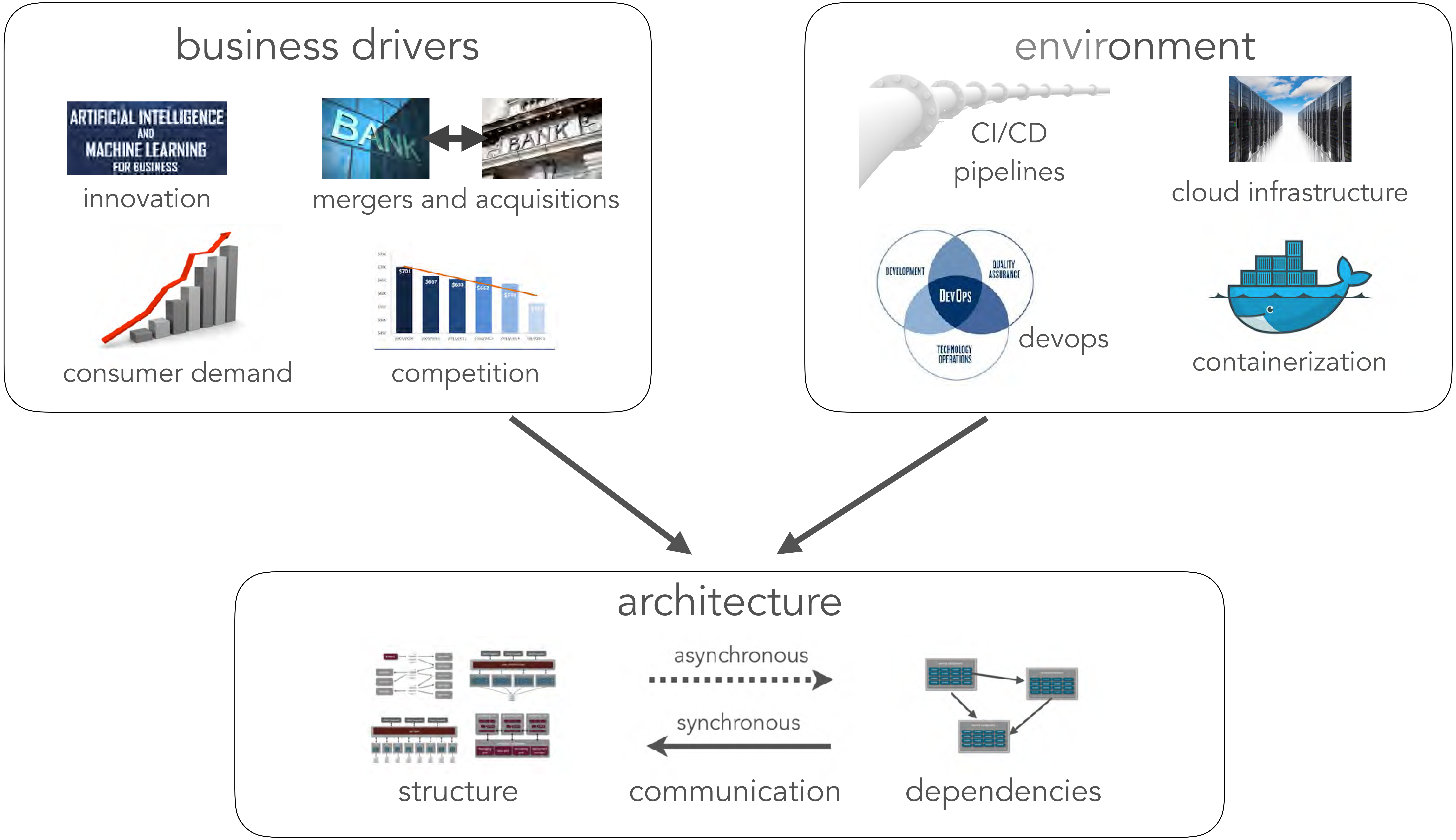
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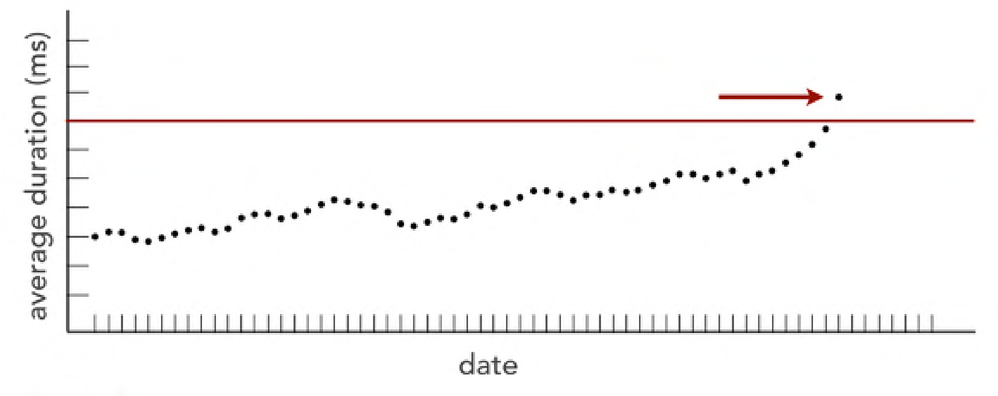
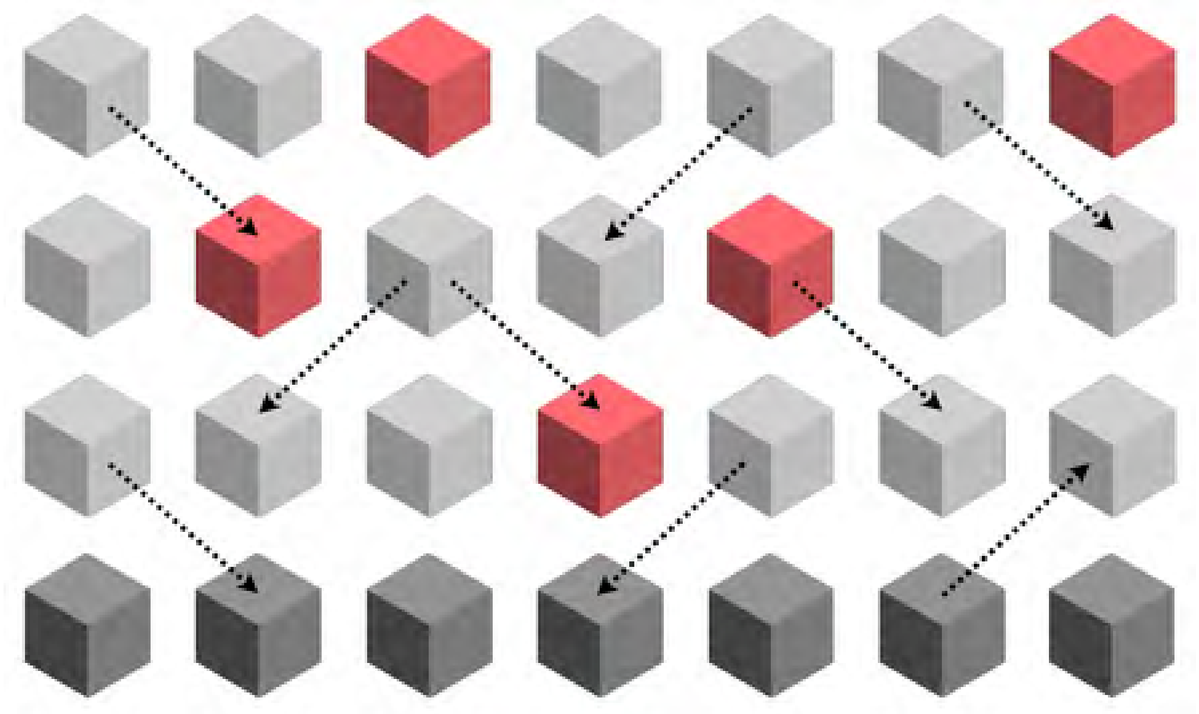
synchronous
communication
dependencies

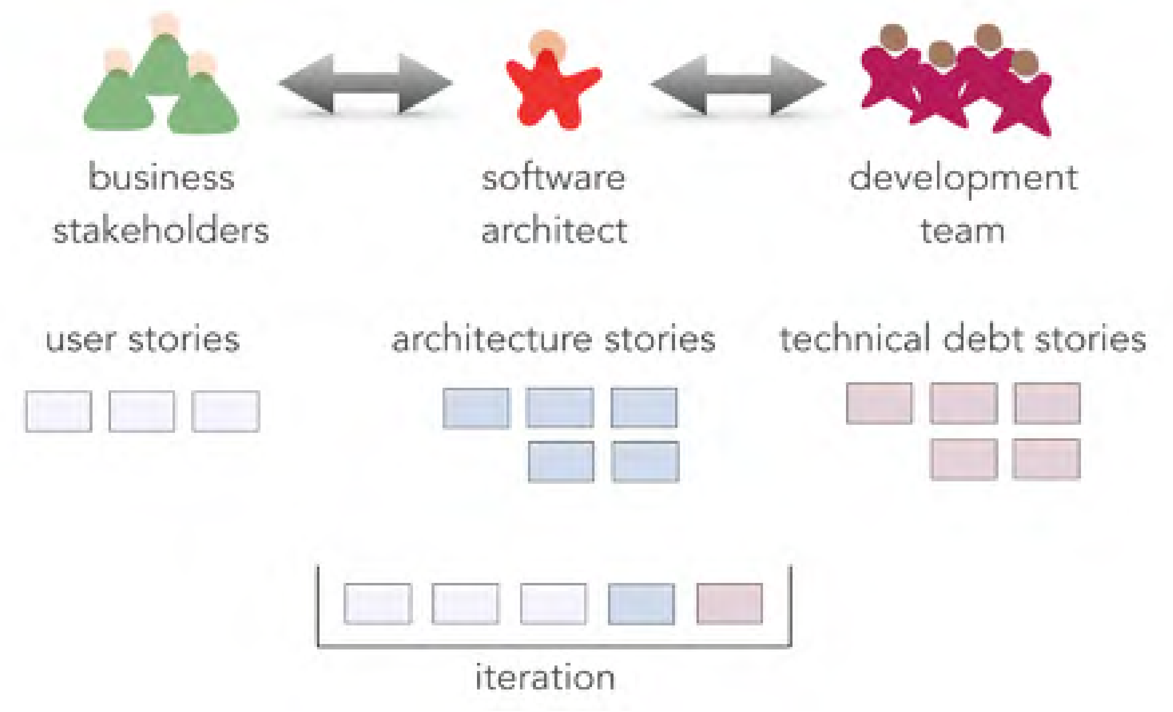
how do software architects handle all of this change?



detect change

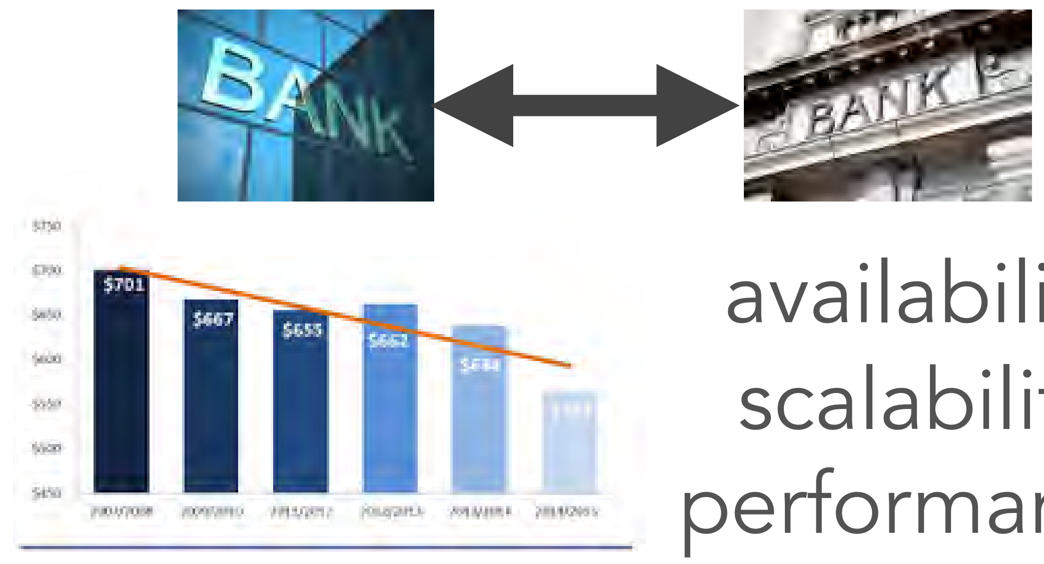


plan for change



facilitate change

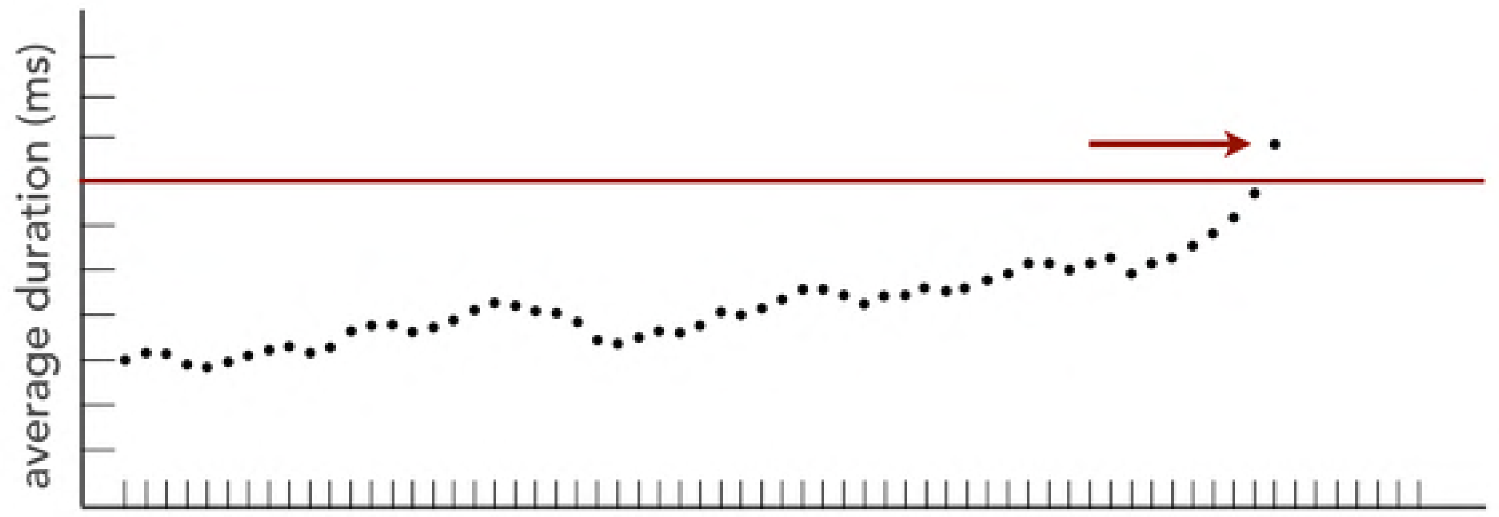
detect change



availability
scalability
performance

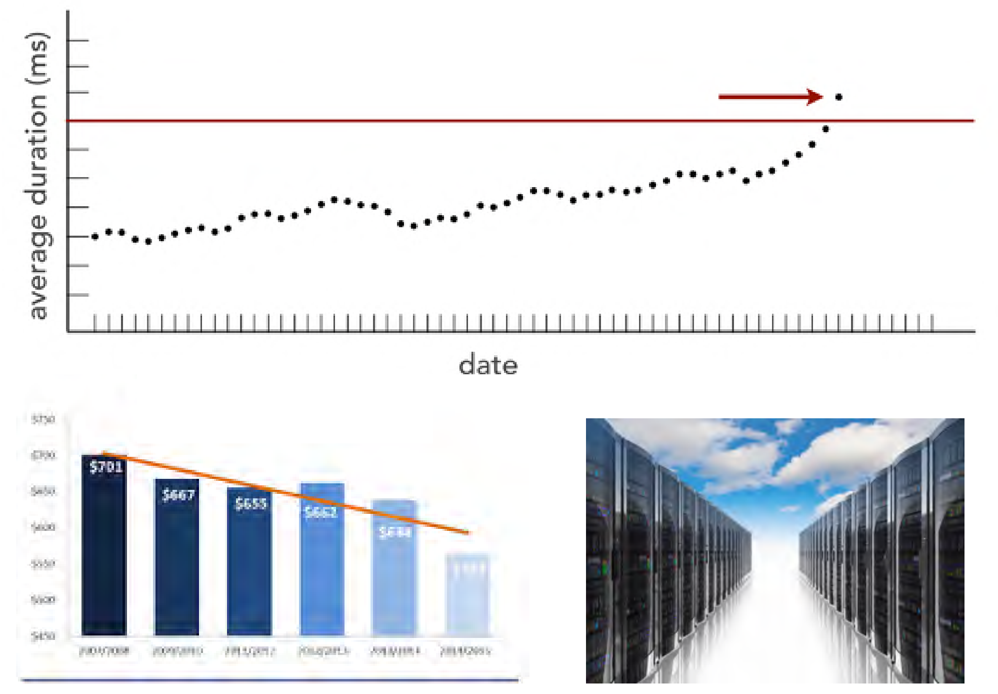
collaborating with
business stakeholders

collaborating with
operations stakeholders



continually analyzing
architecture characteristics

how do software architects handle all of this change?



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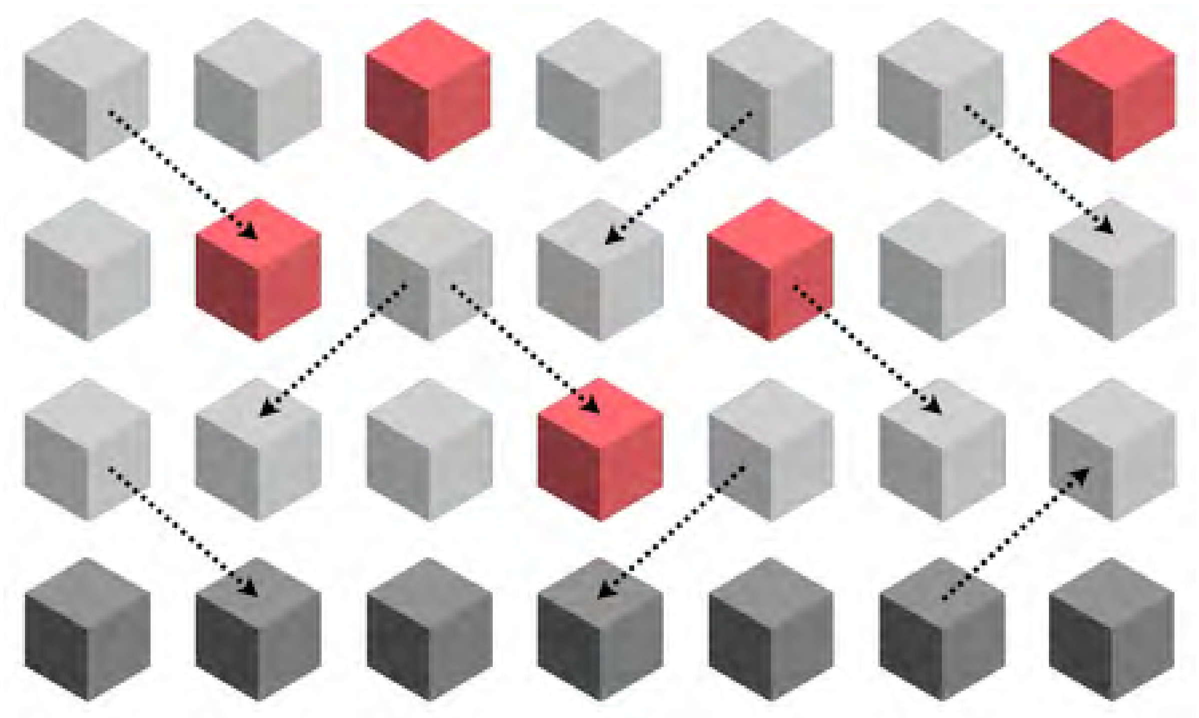

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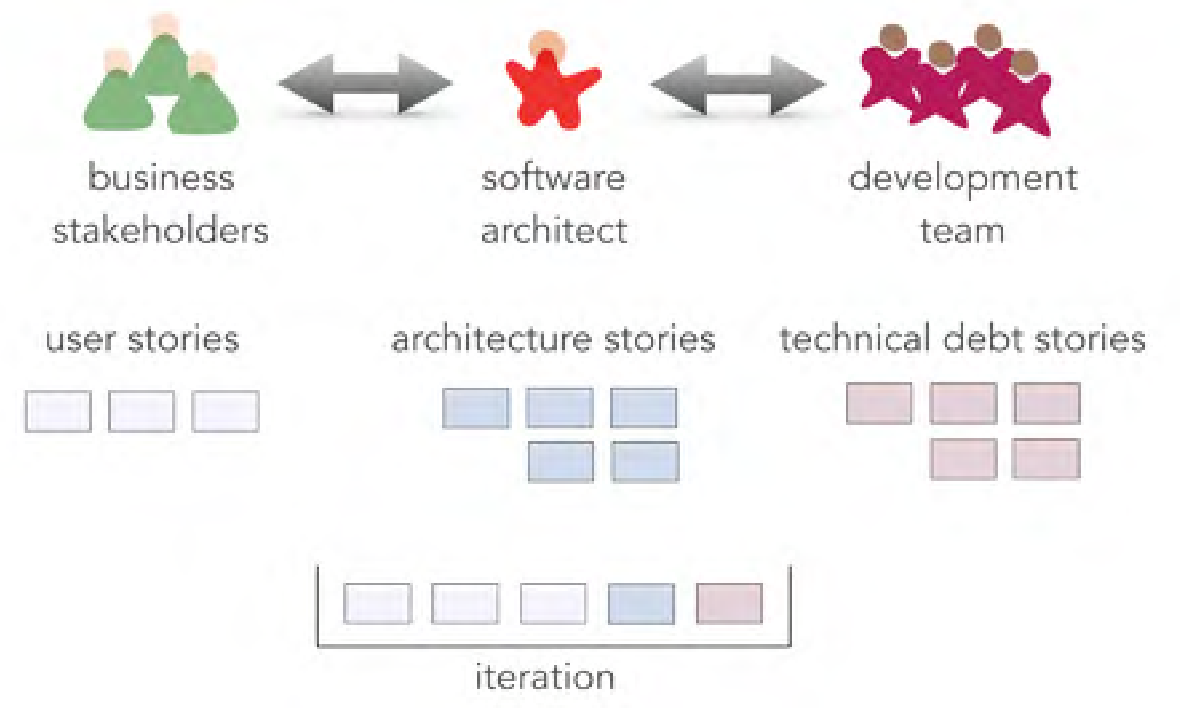

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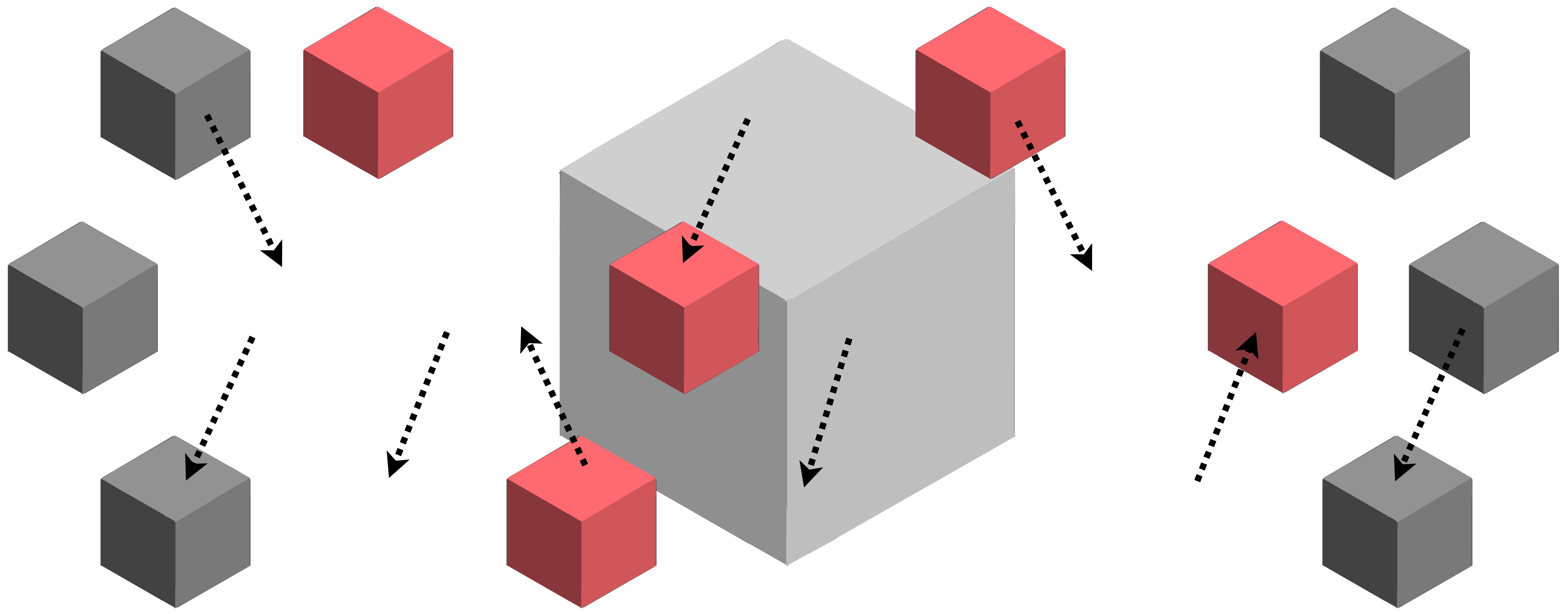
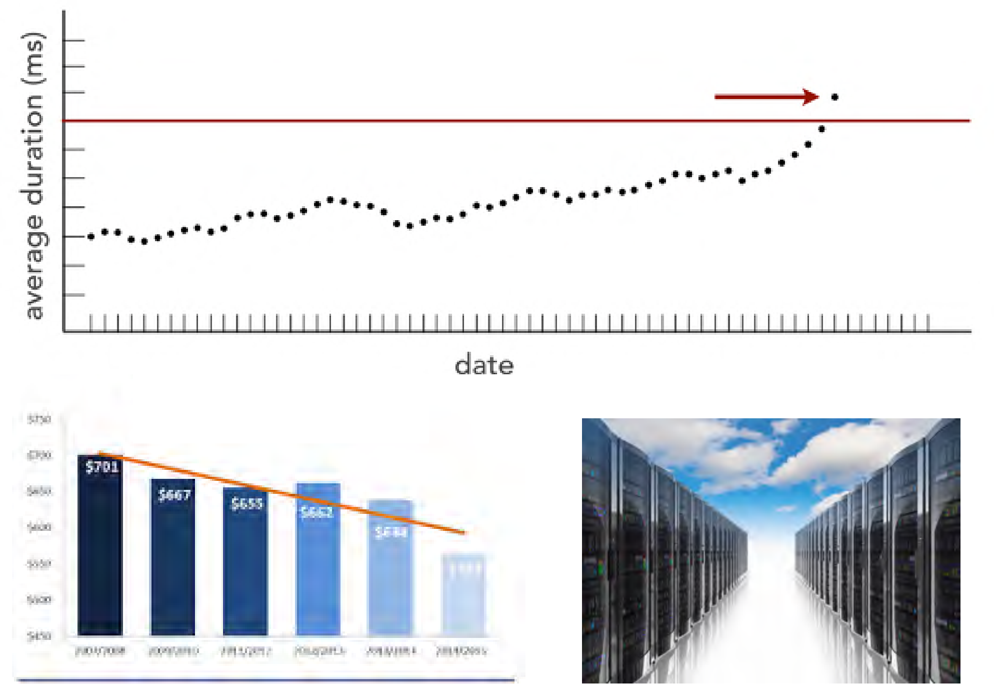


how do software architects handle all of this change?



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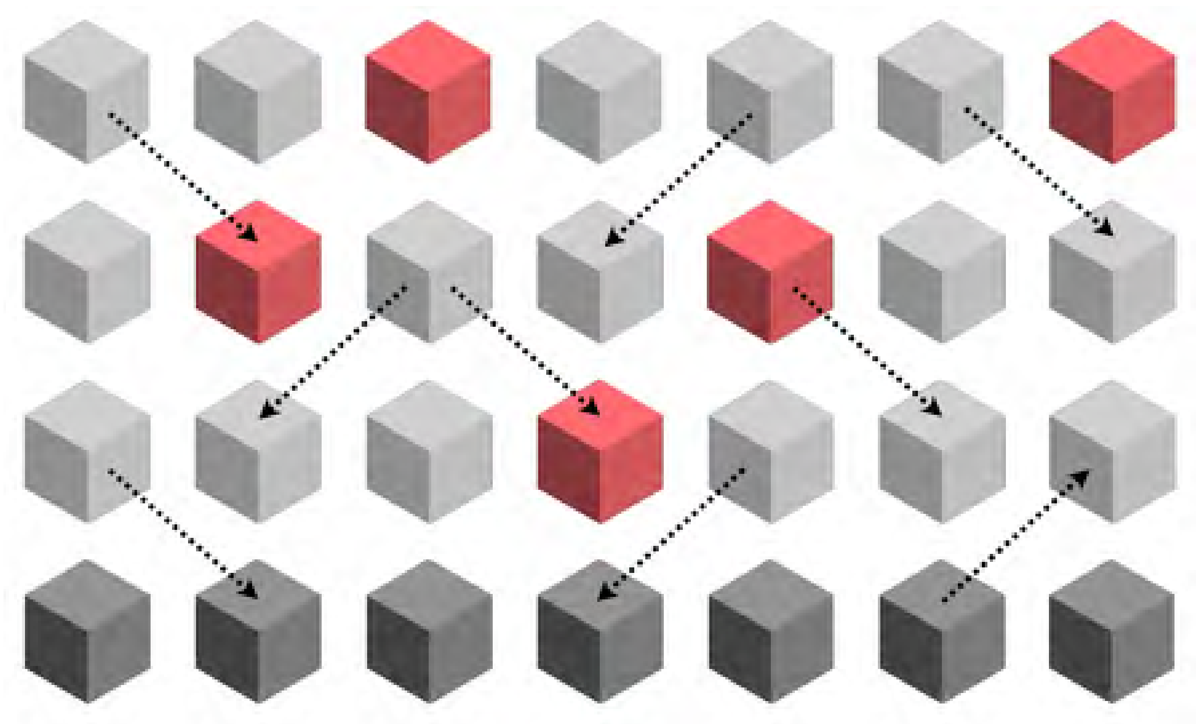

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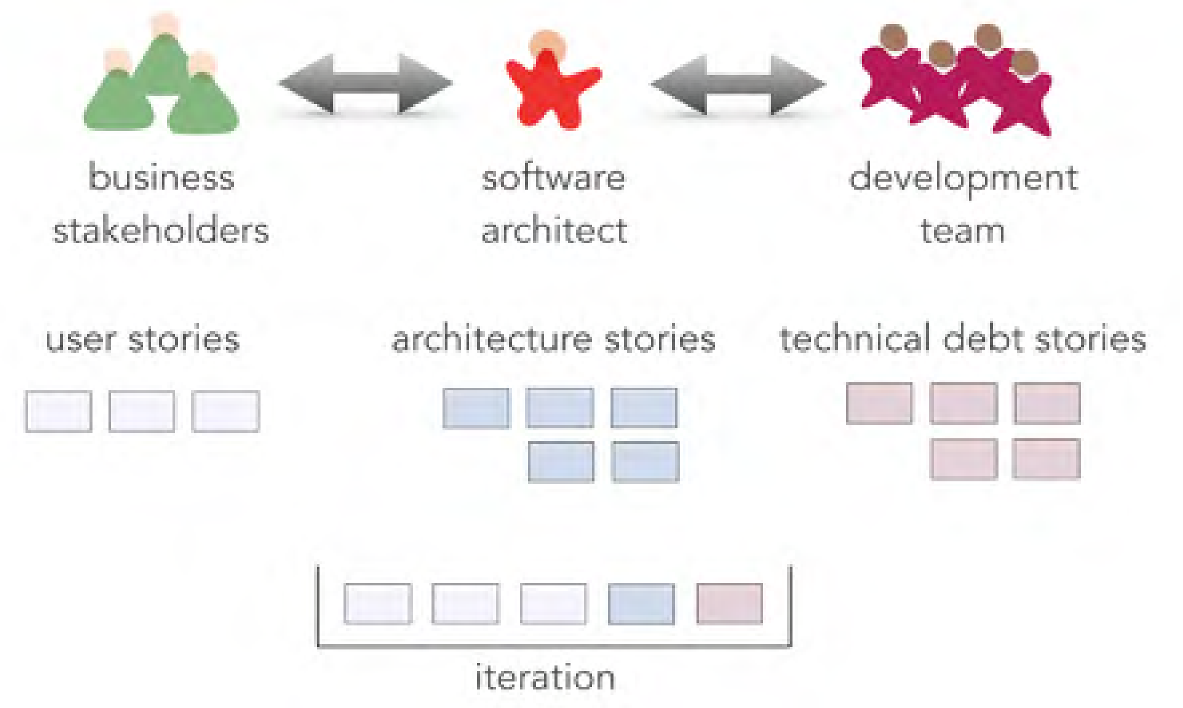

facilitate change

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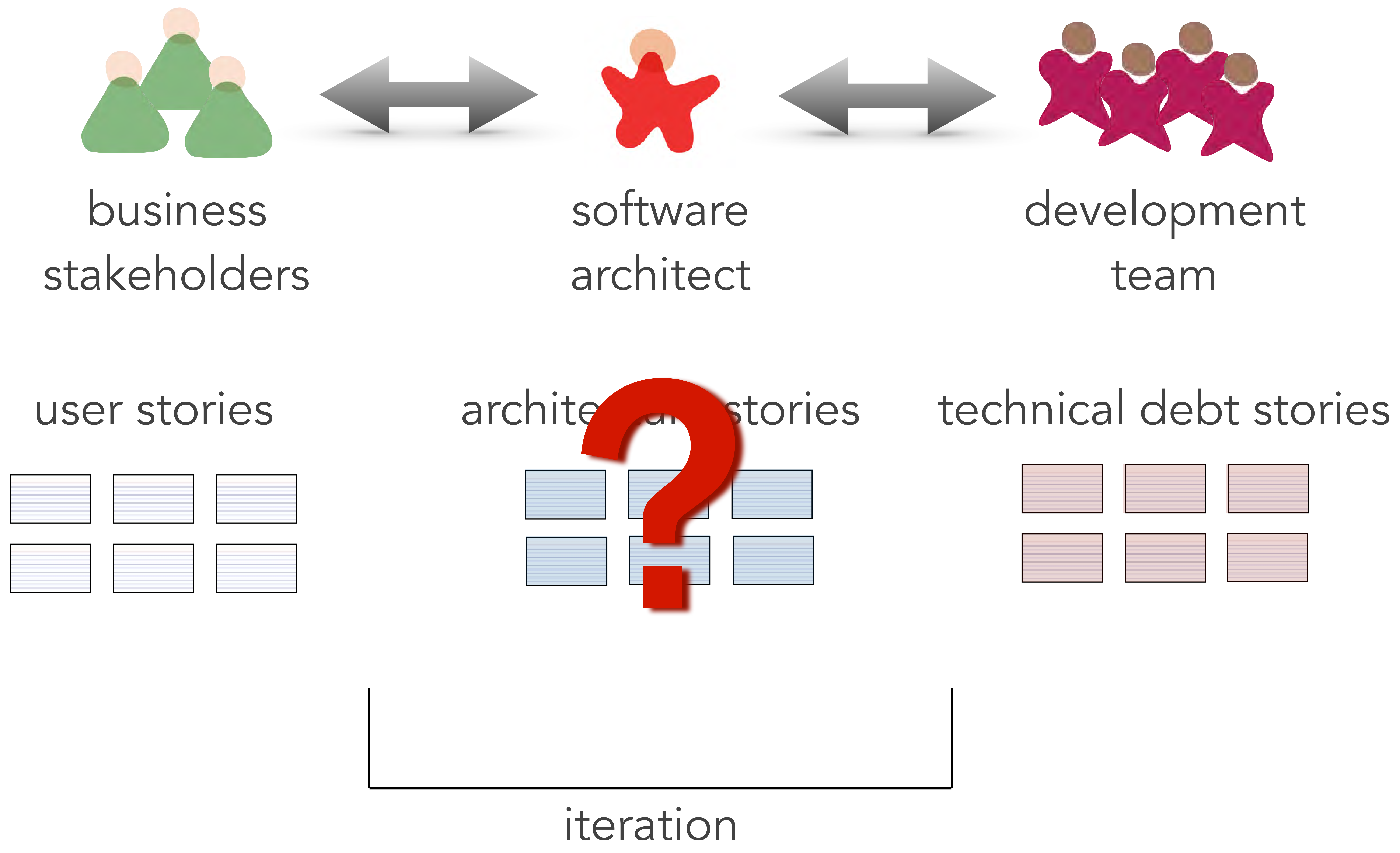

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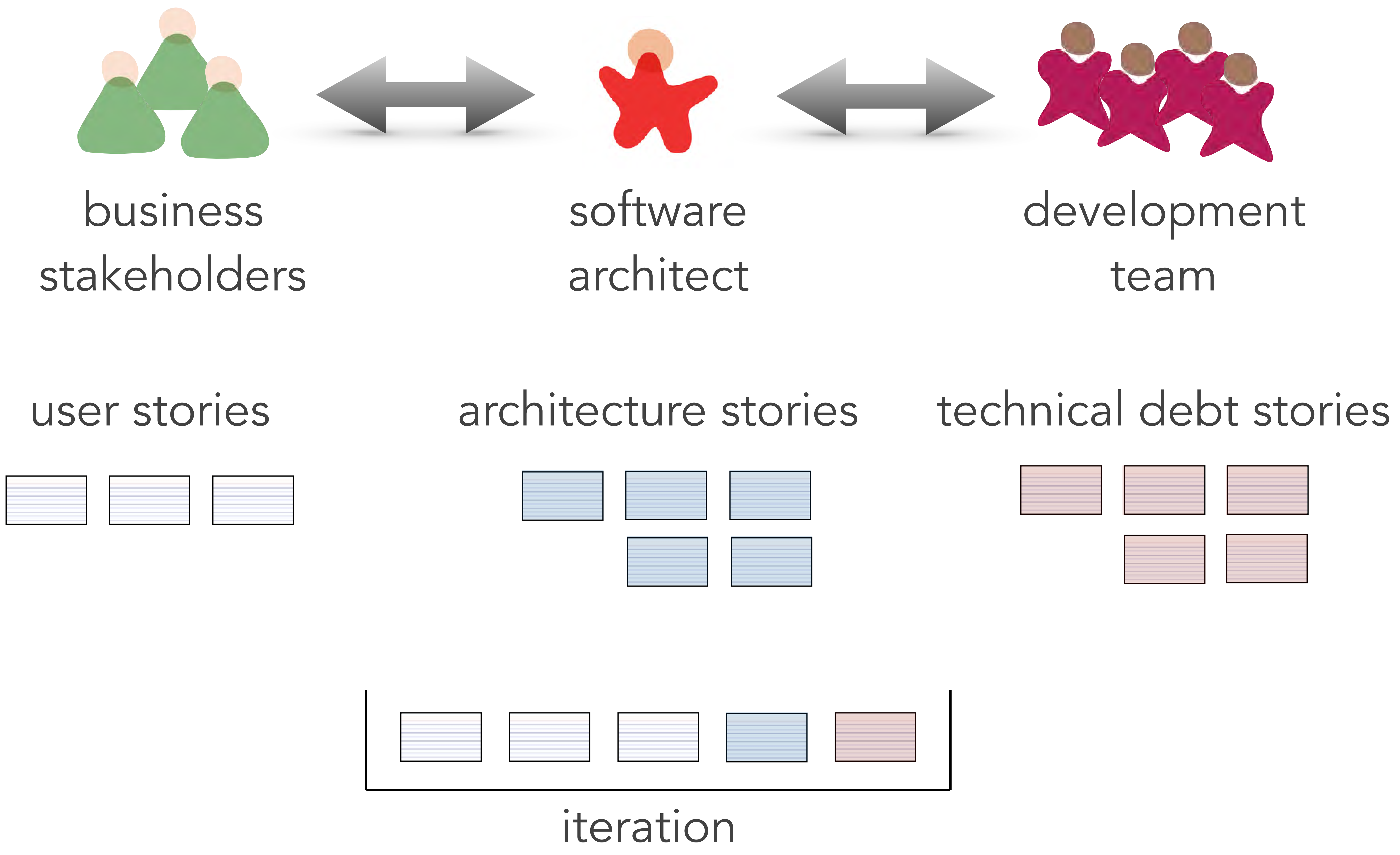

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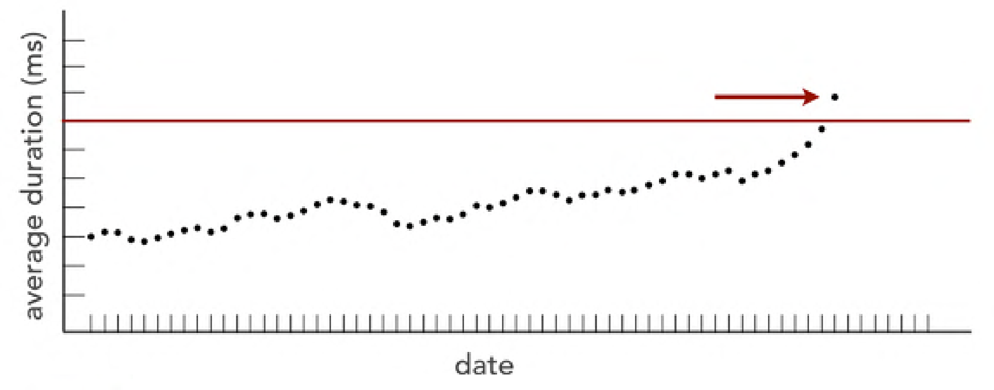

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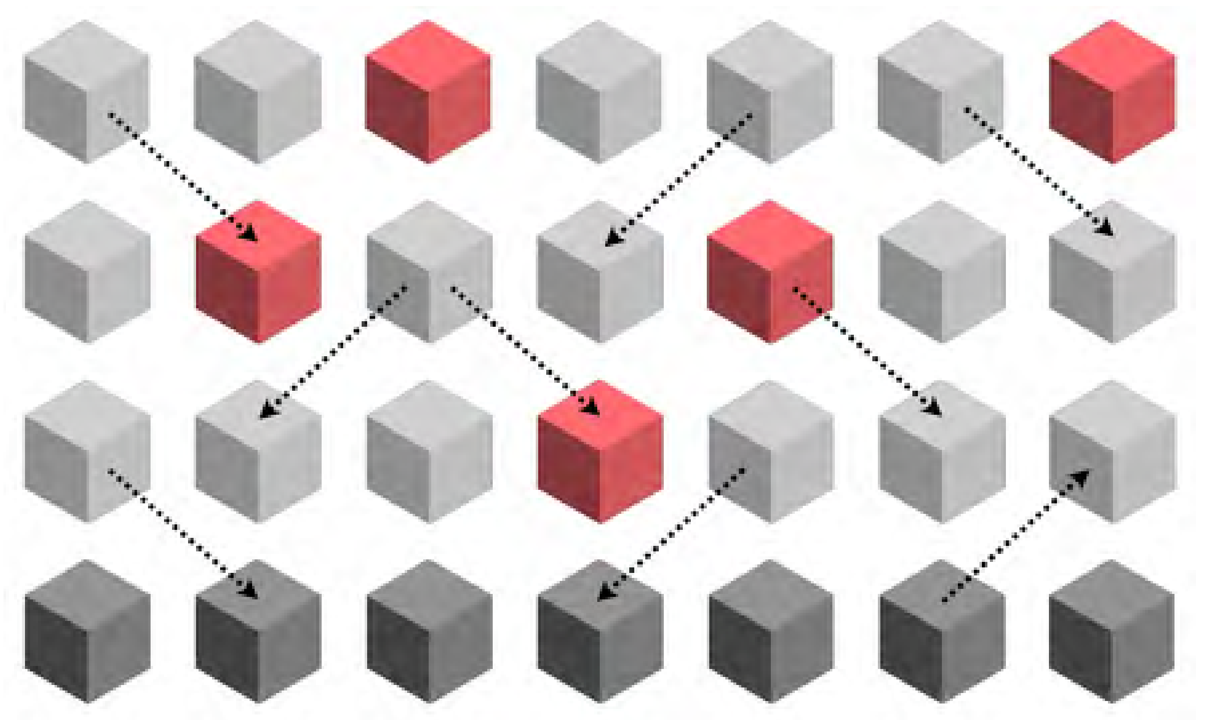
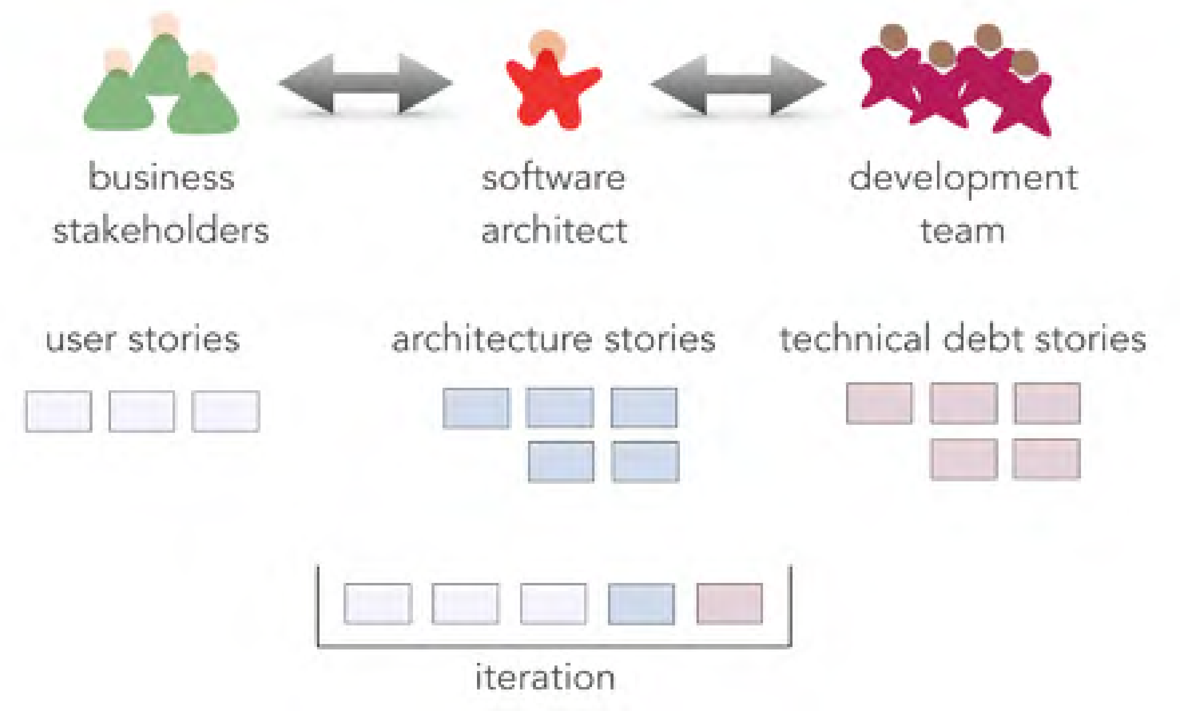
detect change


plan for change



facilitate change

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Software Architecture Conference

Mark Richards

Independent Consultant

Hands-on Software Architect

Published Author|Conference Speaker

Architecture.Next: Invalidating Old Axioms

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