

Architectural Views

Software Architecture

Richard Thomas

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Interesting Software is Complex

Many aspects to the design of its architecture.

Architectural Design

Managing technical complexity.

Question

How do you describe a complex architecture, without making it too difficult to understand?

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Answer

Architectural Views

- Only consider one aspect at a time.

Architectural Views

- C4 Model *[Brown, 2023]*
 - context, structure, behaviour, infrastructure

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- The Open Group Architecture Framework (TOGAF) *[Forum, 2022]*
- ISO/IEC/IEEE 42010:2011 *[iso, 2022]*

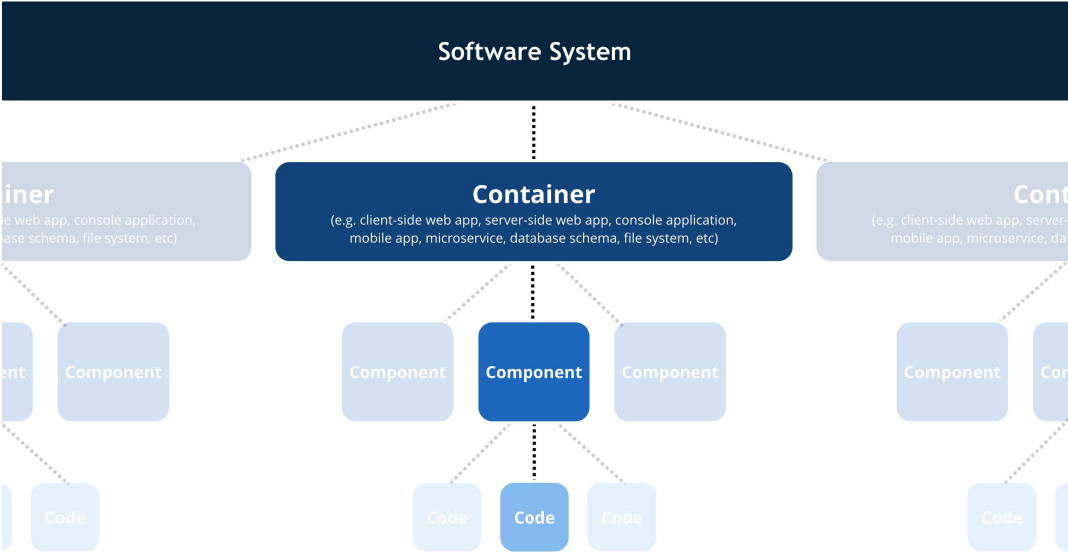
Diagrams & Notation

- A *good* diagram is worth a thousand words
 - A thousand diagrams is just confusing

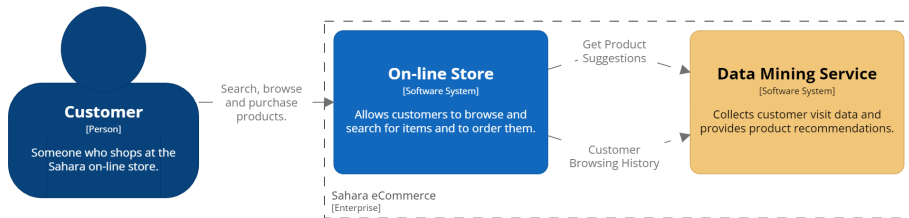
Diagrams & Notation

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- C4 – informal, simple structure *[Brown, 2023]*
- UML – formal, well-defined language *[uml, 2017]*
- You probably don't want to know about alternatives

C4 Model: Levels



C4 Model: Context



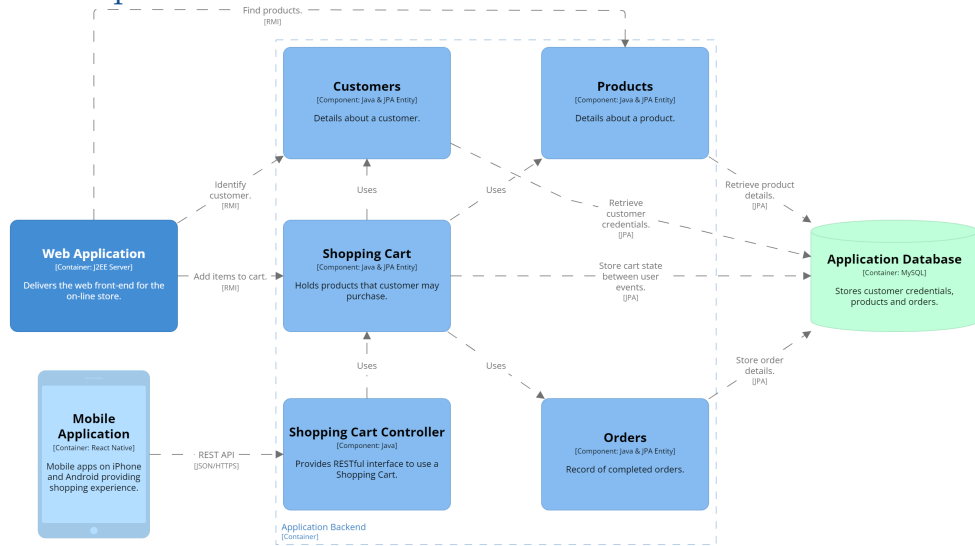
How software system fits into broader *environment*

C4 Model: Containers



Structure of the software system

C4 Model: Components



Elements that implement a container

C4 Model: Code



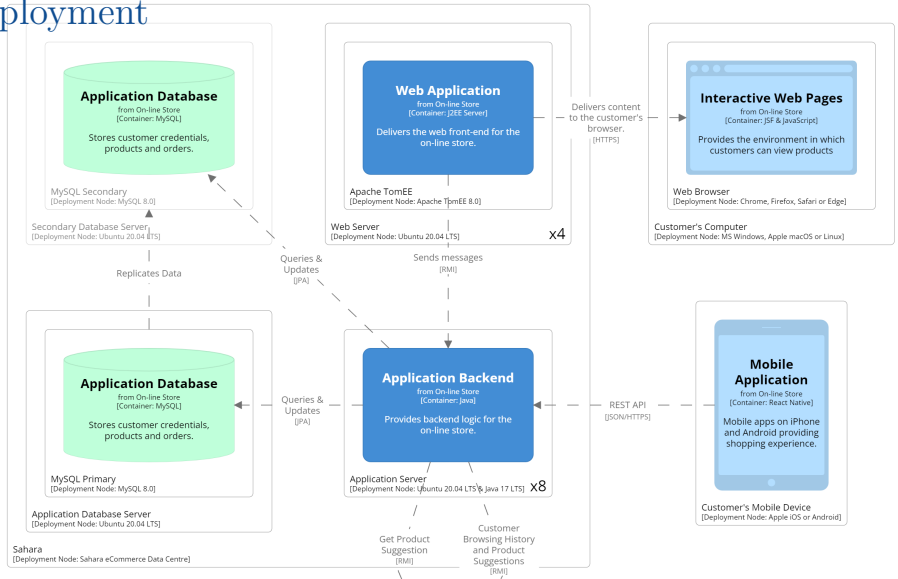
Structure of code implementing a component

C4 Model: Dynamic



How parts of the model *collaborate* to deliver *behaviour*

C4 Model: Deployment



Infrastructure on which system will be deployed

4+1 Views

Logical – *Structure* of how the software is implemented

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- address non-functional requirements
 - availability, reliability, scalability, throughput, ...

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Scenario – *Demonstrate* functionality delivered by architecture

- use case details
 - *drive* functional design of architecture
 - *validate* design of architecture
 - *illustrate* purpose of architecture

Reading...

“Architectural Views” Notes¹ *[Thomas and Webb, 2023]*

¹Remember, I said you had to read the notes.

References

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