Architecture of Distributed Systems

Homework Assignment 1
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Where innovation starts
Exercise

Consider the models on the following slides and answer the following questions. Each model is provided with a hyperlink to acknowledge its source and for additional information.

1. What building blocks do you see? What do they represent? Are they conceptual/generic (C) or physical/specific (P)?
2. Same questions as 1, but now for connectors? Do not forget (C) or (P)!
3. To which viewpoints (1 up to 3) does the model belong?
   Motivate why, and identify corresponding stakeholders and their concerns.
   You may choose from both Kruchten and Rozanski-Woods libraries.
4. Which of the following EFRs are addressed (Y + motivation | N)?
   Performance/scalability, availability/reliability, security, maintainability, other?
5. Is there a concept of distribution (Y + motivation | N)?
6. Comment on the clarity/semantics of the diagram
   😊 | 😊 | 😊, plus motivation

Keep your answers crisp!
Taken from: https://github.com/grpc/grpc/blob/master/doc/load-balancing.md
Taken from:
Stepwise refinement of sequence diagrams with soft real-time constraints
Taken from: Enhancing Automotive Embedded Systems with FPGAs
Taken from: https://concisesoftware.com/is-rest-best-for-micorservices-architecture/
Taken from:
https://www.datawarehouse4u.info/
TARGET STATE - RUN-TIME ARCHITECTURE

PayPal Applications (Wallet, POS)

2nd-party Applications (eBay, Braintree)

3rd-party Mobile Applications (Uber, PhotoCard)

3rd-party Server Applications (Online websites)

PayPal Web Applications

API Facade

Protocol conversion (OAuth, CORS, Routing, Orchestration)

Batch Processing

Batch APIs

Experience APIs

Capability APIs

Payments

Instruments

Customer

Invoicing

Credit

Risk

Compliance

Disputes

Event Bus

External Events

Webhooks