

QUALITÄTSSICHERUNG DER SYSTEM-ZU-SYSTEM-INTERAKTION? MIT BENEFIT?

Die zunehmende IT-Unterstützung der Geschäftsprozesse - insbesondere die einhergehende System-Integration über Unternehmensgrenzen hinaus - macht uns essenziell abhängig von einer fehlerfrei funktionierenden Interaktion der IT-Systeme.

Schnittstellen, Interfaces, APIs bilden die Basis für die System-Interaktion bei einer automatisierten Geschäftsprozesssteuerung (BPM), B2B-Integration wie auch bei Multi-Channel-Konzepten.

Der Vortrag führt Sie in die Qualitätssicherung dieser System-zu-System-Interaktion ein und zeigt Lücken und Auswirkungen der üblichen Herangehensweisen. Zudem Sie lernen Tipps und Tricks kennen, wie Sie bei diesem spezifischen Testobjekt frühzeitig die Qualität prüfen können und so Ihr Integrationsprojekt positiv beeinflussen können.

LUDWIG RONNY ECKARDT arbeitet seit 1997 in immer wieder wechselnden IT-Projekt-Themen: Anforderungsmanagement, Software Architektur und Entwicklung sowie Qualitätssicherung. So kennt er die spezifischen Blickwinkel und Überschneidungen sowie deren Synergie-Potentiale. Sein Spezialgebiet sind Geschäftsprozess- und Service-orientierte Unternehmensanwendungen.

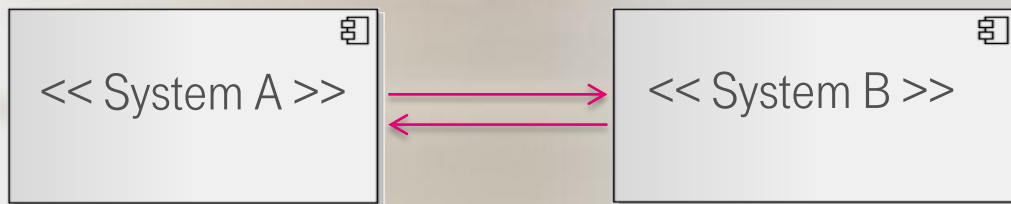
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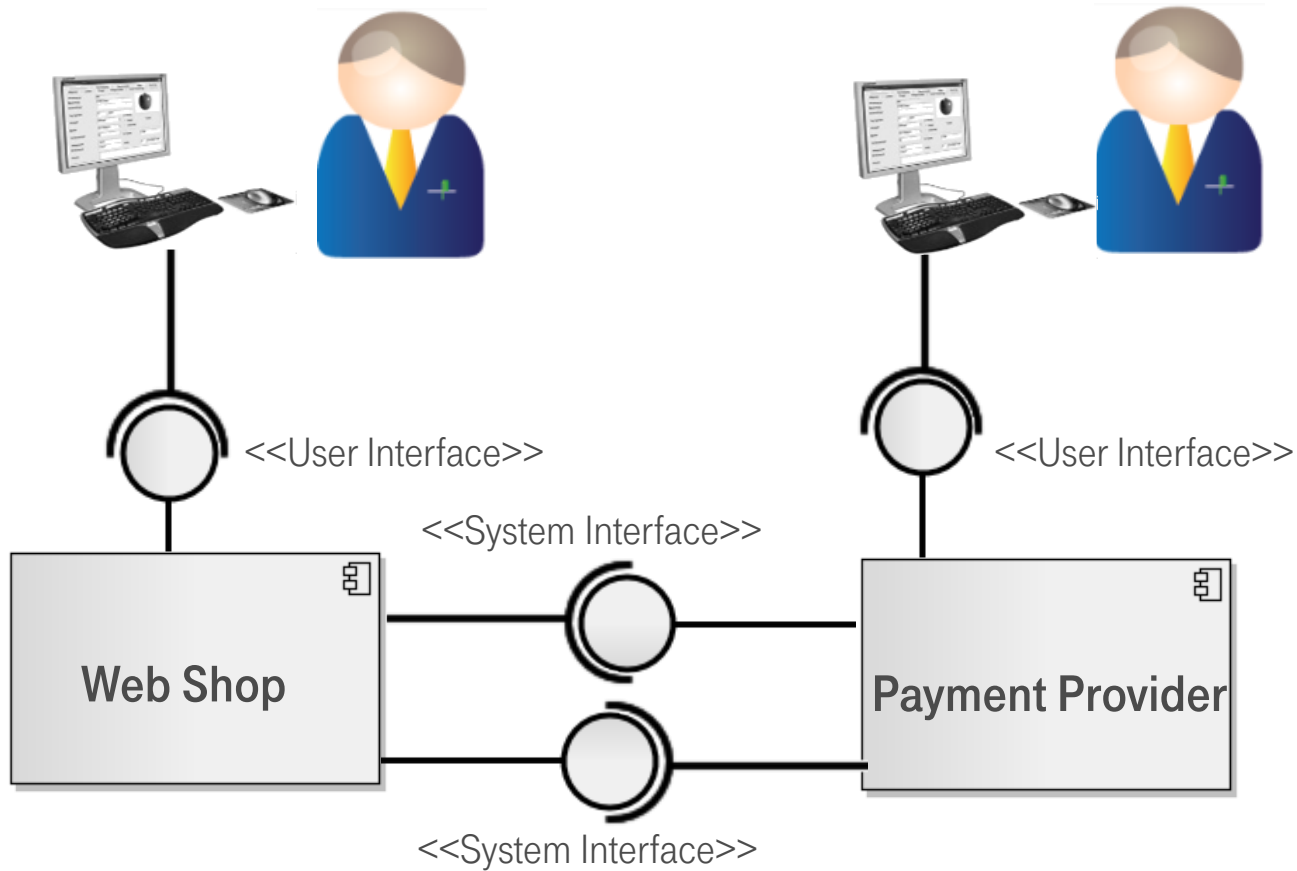
EIN BLICK ÜBER DEN TELLERRAND AUF SCHNITTSTELLE, API UND SOA-SERVICE



**QUALITÄTSSICHERUNG DER SYSTEM-ZU-SYSTEM-INTERAKTION?
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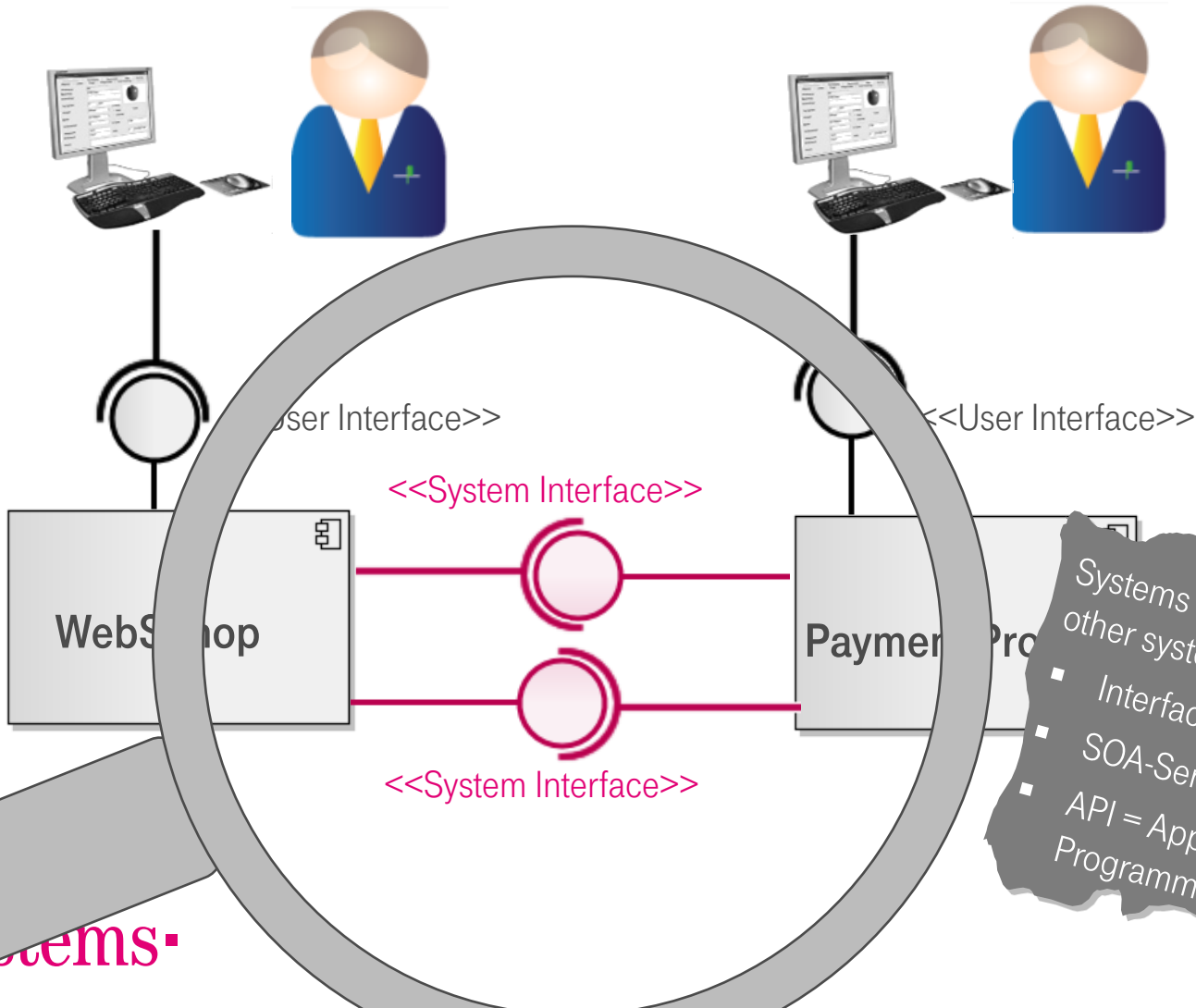
SYSTEM TO SYSTEM INTERACTION?

DIFFERENT TYPES OF INTERFACES OF SYSTEMS

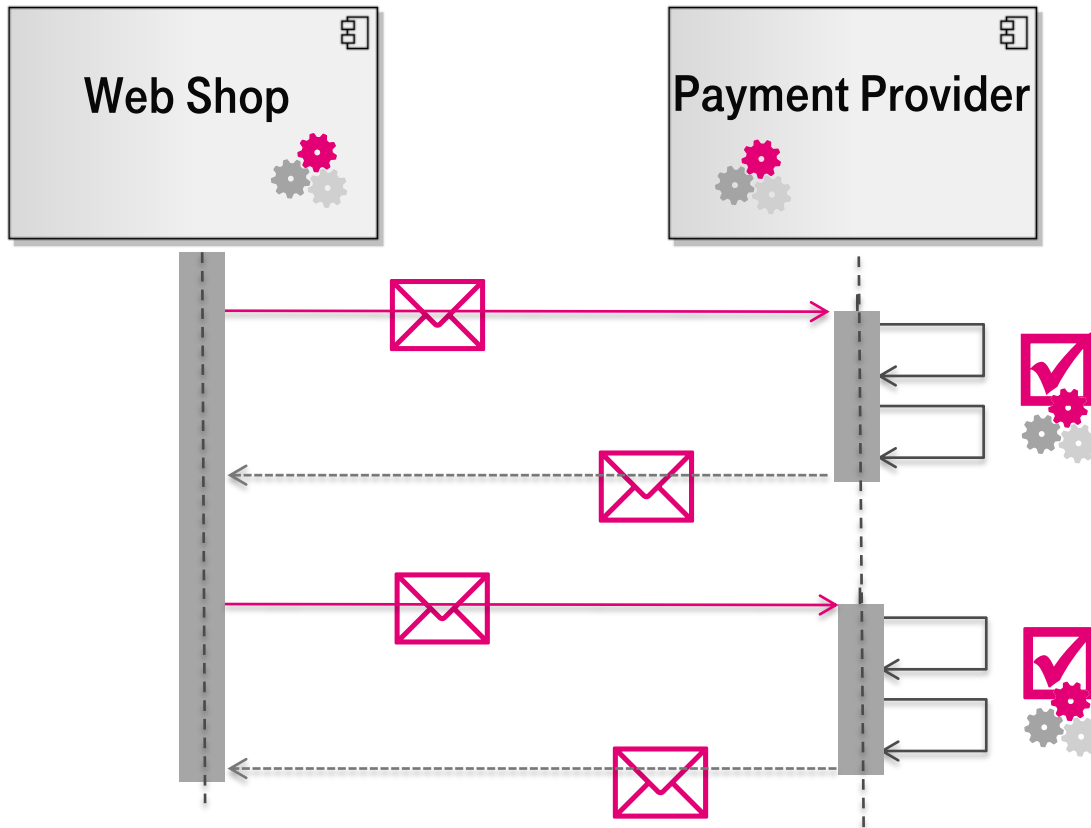


DIFFERENT TYPES OF INTERFACES OF SYSTEMS

TODAYS FOCUS: SYSTEM INTERFACES



INTERACTION - BASICS



Data exchange

Business Function

- Input-Parameters
 - Structure
 - Validation
- Response-Values
 - Structure
- Functional Exceptions

Interaction-Sequence

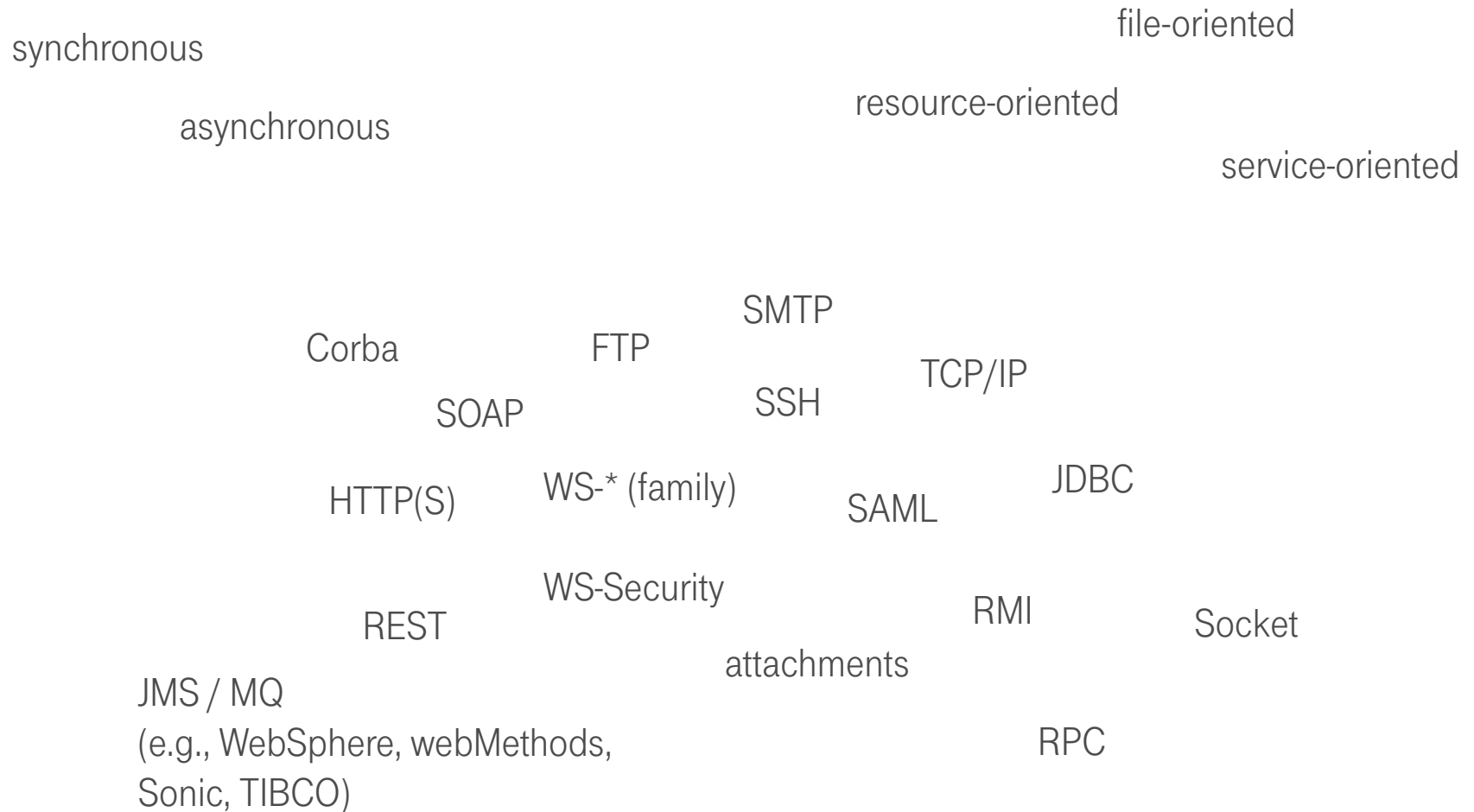
SYSTEM TO SYSTEM COMMUNICATION ALL AROUND

- **Social Media – i.e. Login**
 - Facebook, google+, Xing, LinkedIn, ...
- **Commerce (B2B)**
 - Google Maps, Amazon, E-Bay, Salesforce, Force, ...
- **Industry standards for interchange**
 - EDI (Electronic Data Interchange) standards (Edifact, ...)
 - SEPA (Change to IBAN and BIC)
- **Systems with Plug-in-Interfaces**
 - Browser-add-on-interfaces
 - Developer-tools like Eclipse add-ons
- **Old file-based Interaction**

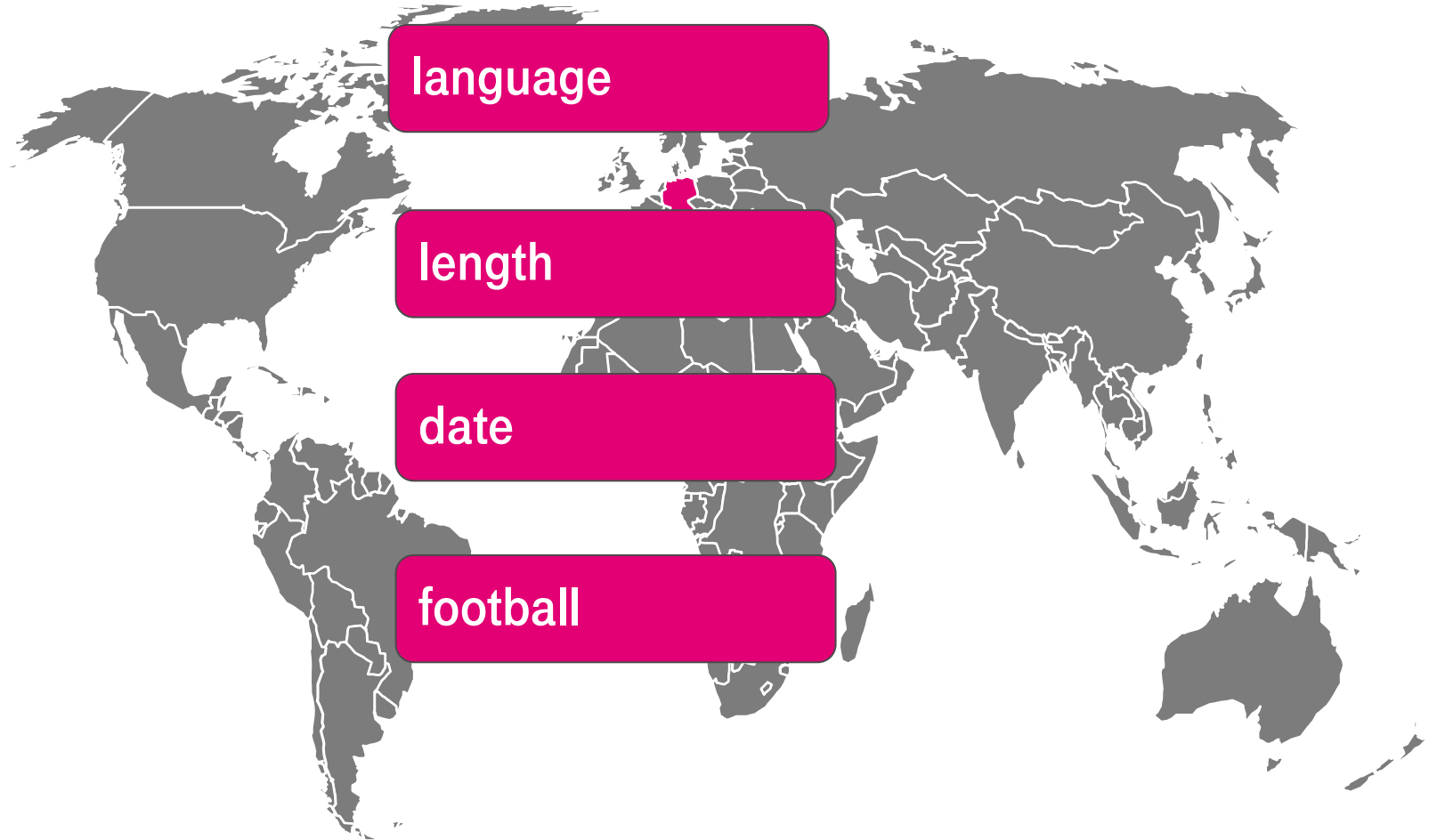


WHY IS IT FAILURE- PRONE

VARIOUS TECHNOLOGIES USED FOR SYSTEM INTERACTION



COMMUNICATION ACROSS BOARDERS



WHICH PROBLEMS DO WE OFTEN FIND ON THE SYSTEM INTERFACES?

• Functional



- Different return-value for proper input-parameter
- Different behaviour for unexpected input-parameter
- accepts invalid input-parameter

• Load and Performance



- additional clients / consumers system does not as expected (wrong functional behaviour, bad response times)
- race conditions (2nd earlier then 1st message)

• Integration Problems



- React not like documented
- New Version of provider of interface behaves different (**Functional**)
- Does not work with my technology (Encoding + Standard-conformance)

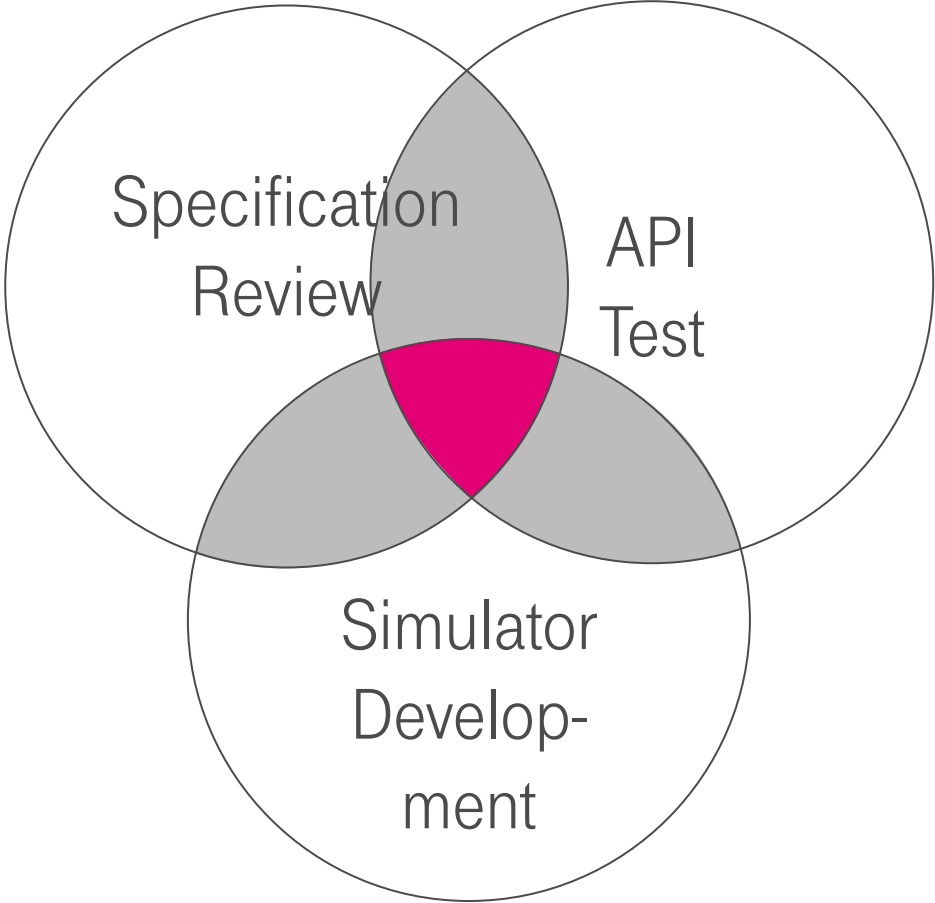
• Security



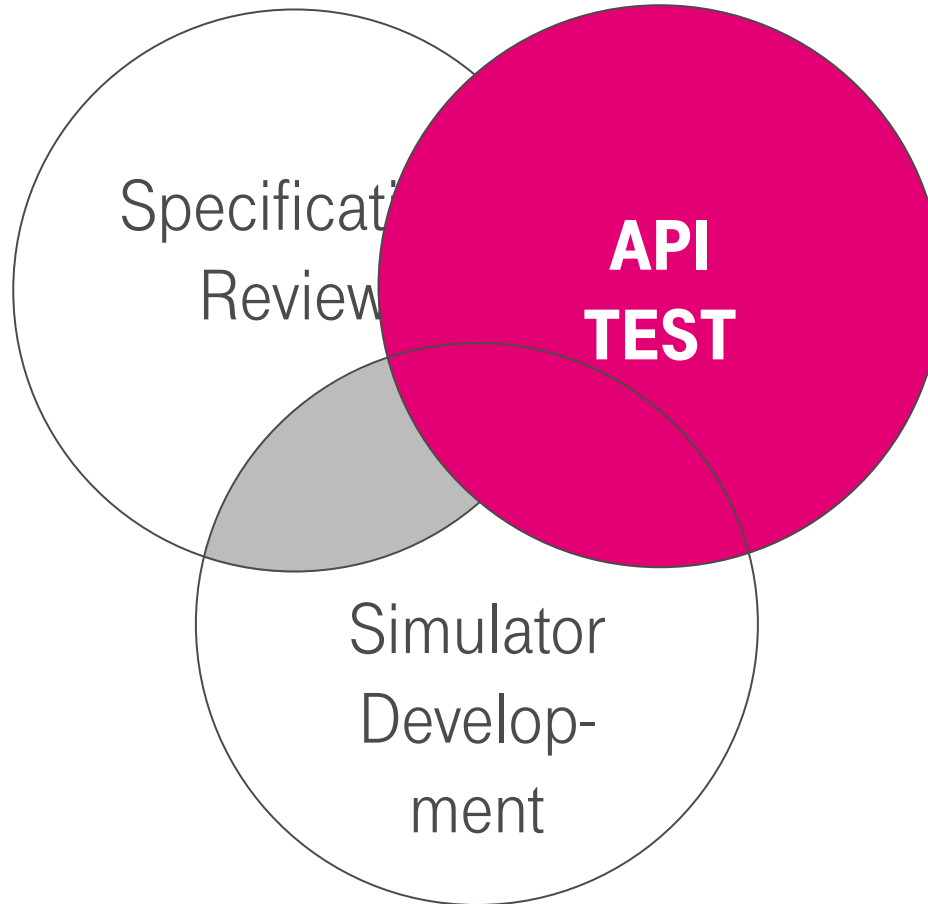
- Hacking-wholes
- Exceptions offer information for hackers

WHAT ABOUT AN API-TEST?

QUALITY ASSURANCE ON APIS

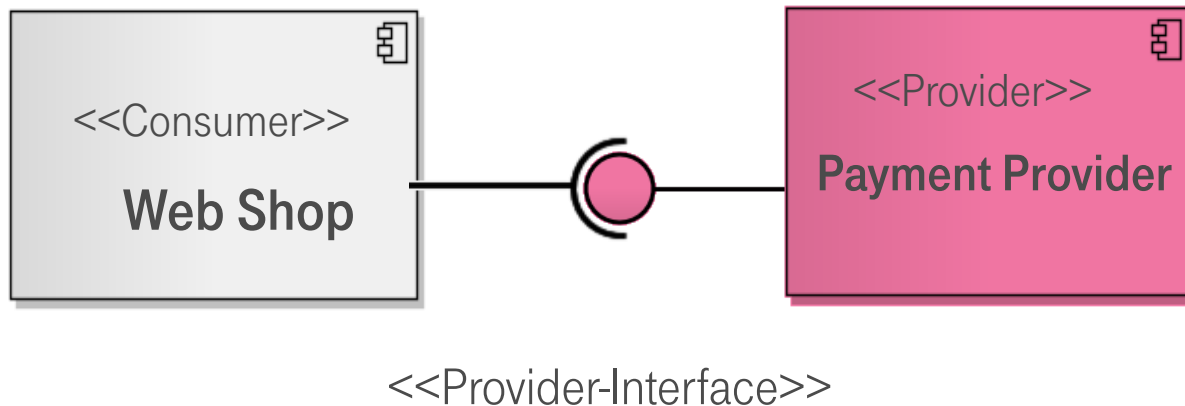


QUALITY ASSURANCE ON APIS



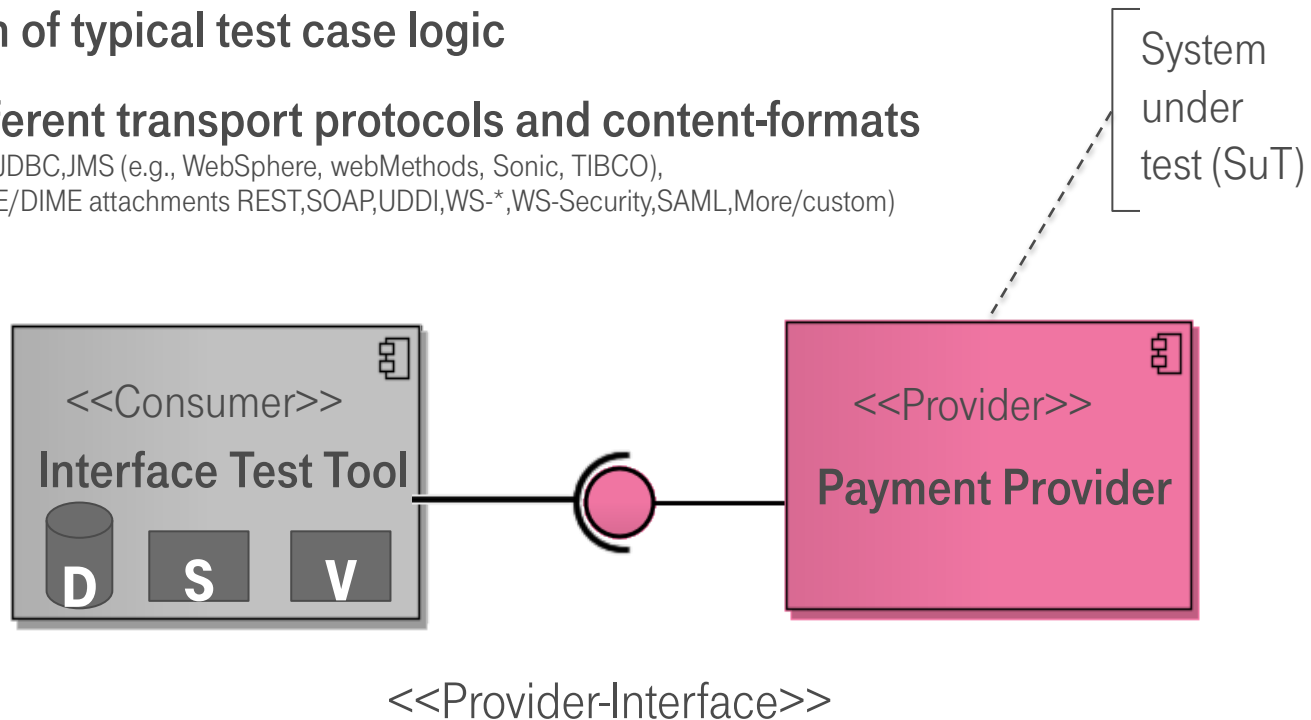
FUNCTIONAL API-TEST

- Replace the real system “Web Shop” by an API-Test-Tool



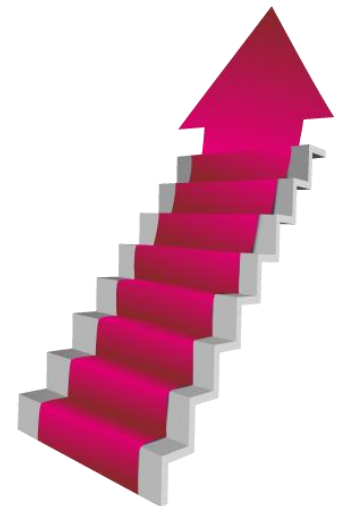
FUNCTIONAL API-TEST

- Replace the real system “Web Shop” by an API-Test-Tool
- Direct access to system functionality
 - Interacts with “Payment Provider” like a real “Web Shop”
 - stays with interface-contract
 - Focus on business logic / functionality
- Easy creation of typical test case logic
- Supports different transport protocols and content-formats
(HTTP/HTTPS,TCP/IP,JDBC,JMS (e.g., WebSphere, webMethods, Sonic, TIBCO),
MQ,MTOM(XOP)/MIME/DIME attachments REST,SOAP,UDDI,WS-*,WS-Security,SAML,More/custom)



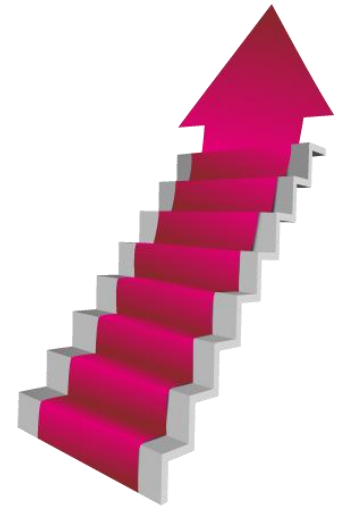
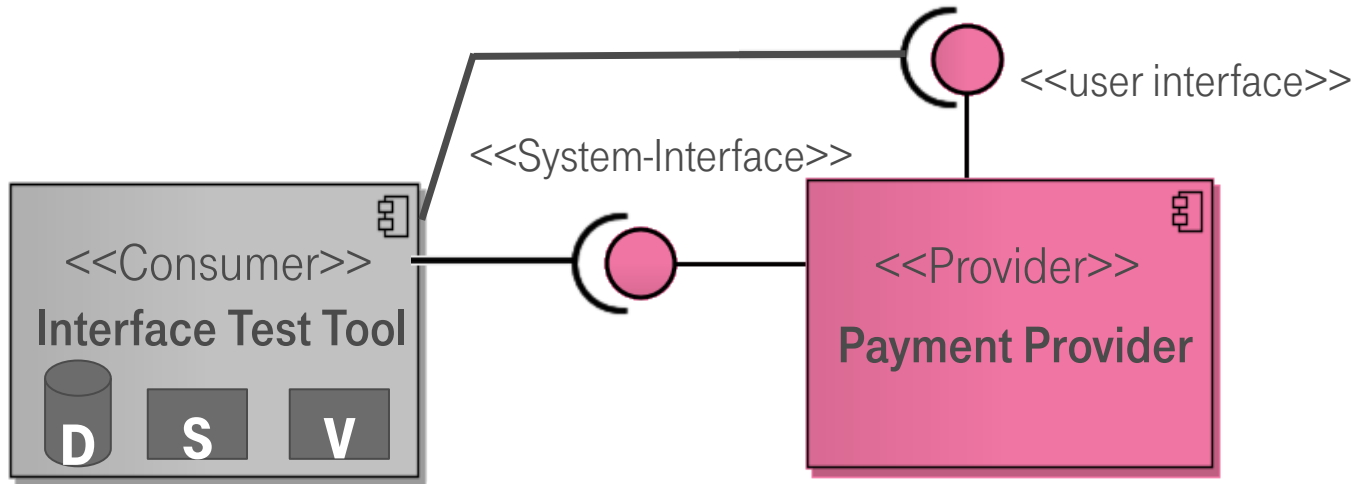
FUNCTIONAL API TEST LEVELS OF QUALITY CHECK

1. Send request, receive and validate response according to message exchange pattern (MEP)
2. Data-driven variation of request data
Send different variation to test different paths of business logic (range of positive and negative test cases)
 - ✓ All operations
 - ✓ All mandatory and optional parameters
 - ✓ All parameter combinations
 - ✓ All parameter validations
 - ✓ All data combinations within complex types
 - ✓ All exceptions
3. Sequence of interactions



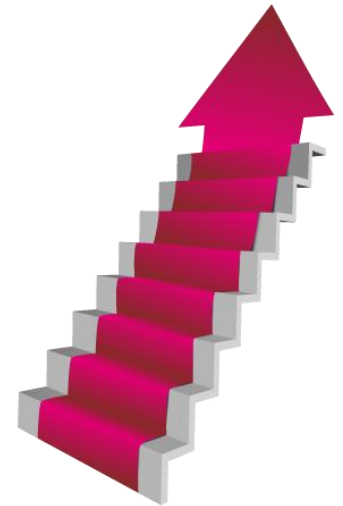
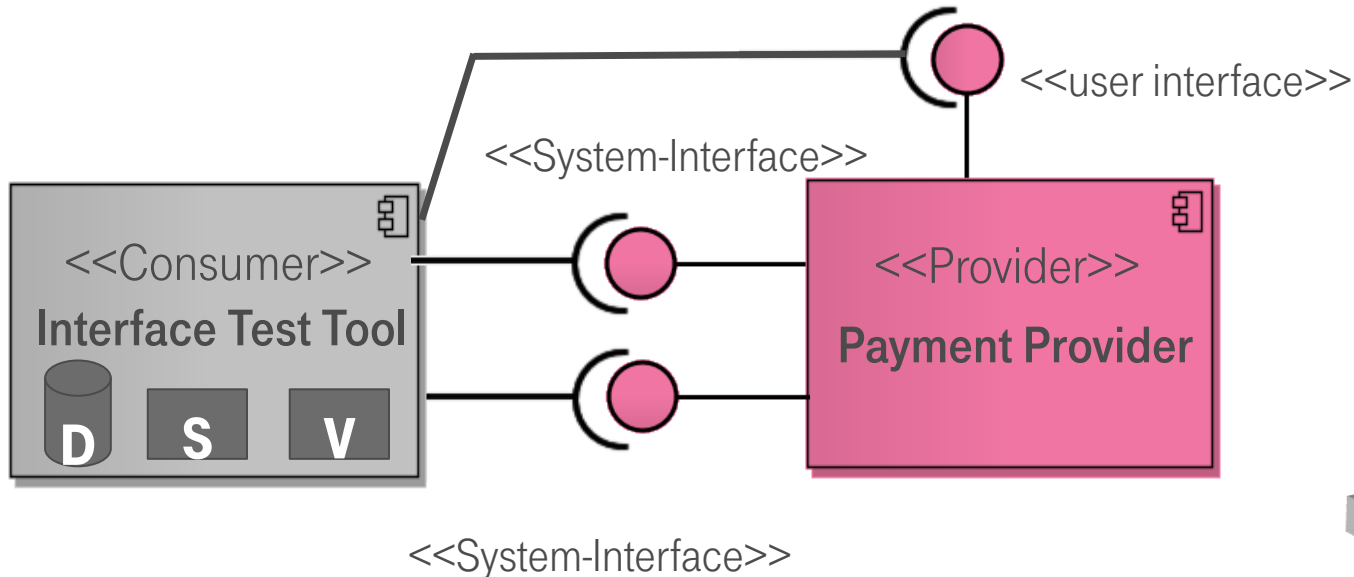
FUNCTIONAL API TEST LEVELS OF QUALITY CHECK (2)

4. Interact with GUI of system under test (combined Interface + GUI test)
i.e. to simulate a human interaction like loan approval



FUNCTIONAL API TEST LEVELS OF QUALITY CHECK (2)

4. Interact with GUI of system under test (combined Interface + GUI test)
i.e. to simulate a human interaction like loan approval
5. Validate business-data-status inside the storage database of system under test



INTERFACE TEST

ADVANTAGES OF A SPECIALIZED TEST TOOL

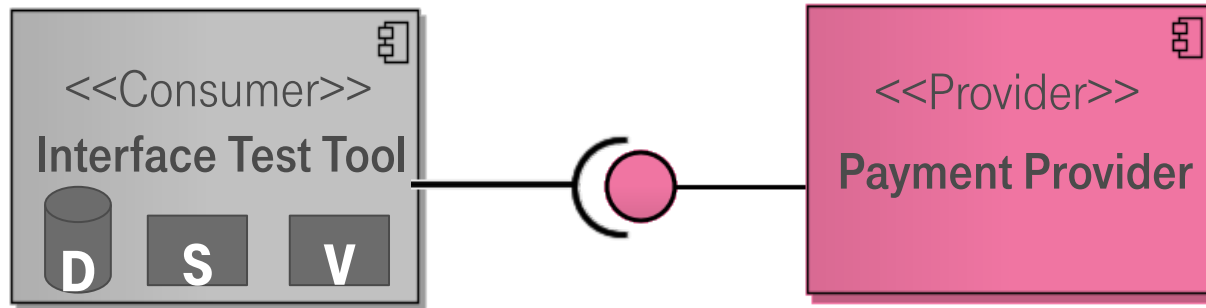
Functional Test

- Cover all matching test types
- Simulate message race conditions (2nd earlier than 1st message)
- Integration in test management tools
- Automation of tests & CI-Integration

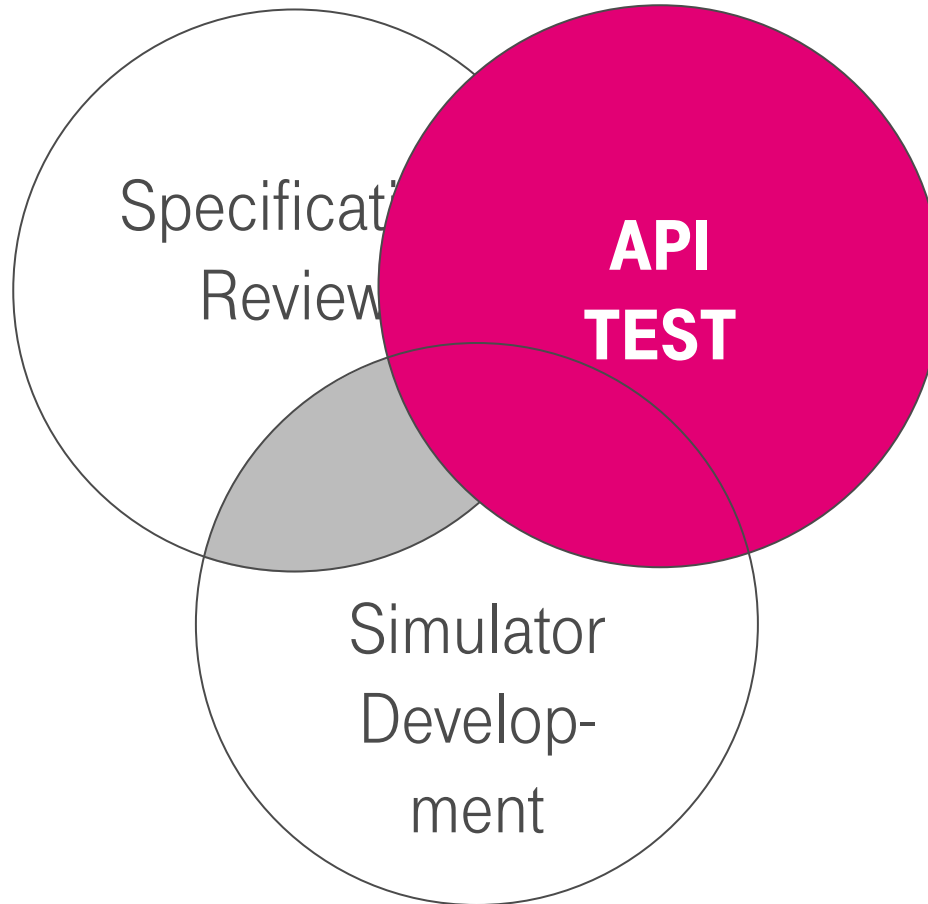
Load+Performance Test

Security Test

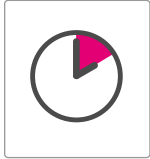
Standard conformance



QUALITY ASSURANCE ON APIS

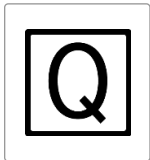


API TEST CREATES BENEFITS FOR PROJECTS AND YOUR IT-GOVERNANCE.



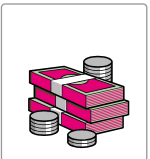
Save Time, and find failures **early**

- Move some test-efforts away from critical path direction development
- Start to test before GUI and all used components are ready and integrated
- Support **faster integration** and **locate error-prone components faster**
- Save infrastructure-code and make tests better maintainable than unit-tests
- **Reuse test cases for smoke test, functional test, performance test and monitoring**



Know about the Quality of your via APIs offered system-functionality

- **Get independent and objective Opinion**
- Higher functional test coverage designed on base of your API-specification
- Including test of standard-conformance, load and performance, security



Save Costs

- The earlier bugs are found, the cheaper it is to fix it

But needs additional special knowledge about communication specifics

DID YOU RECOGNIZE CHALLENGES OF YOUR PROJECTS?

QUALITY ASSURANCE OF APIS, SYSTEM-INTERFACES AND SOA-SERVICES

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Benefit from our experience.
Since 2008 we do professional interface test and simulation of system-functions in big SOA-Infrastructures as well as in small projects, during development as well as on several test stages and support operations teams.

**AKKREDITIERTES TEST AND
INTEGRATION CENTER**