
Let´s plan Your Success,
starting 2021
INTEGRATOR
OPERATOR
NETWORK ELEMENTS
IT

Quality is more important than quantity.

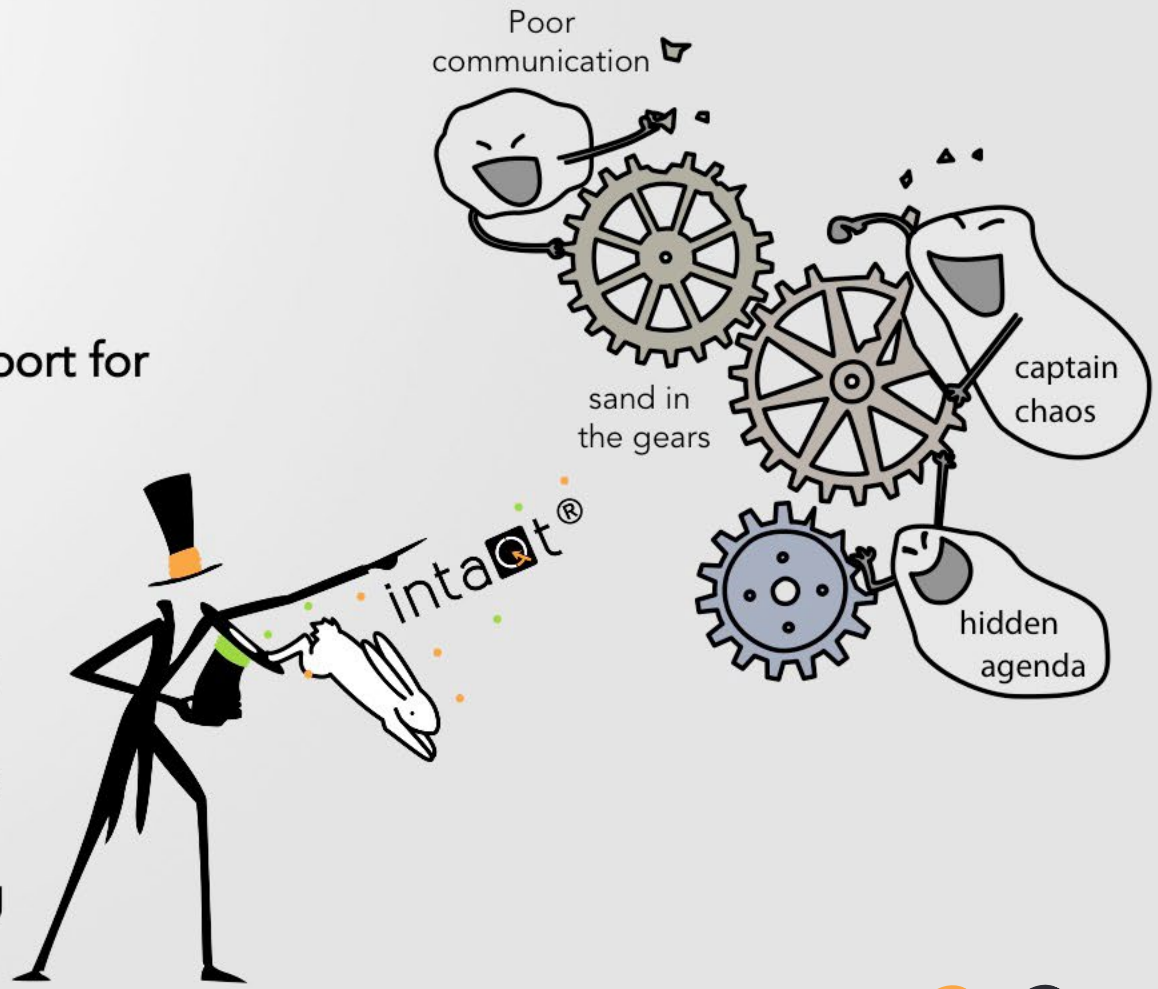
One home run is much better than two doubles.

Steve Jobs

Critical Success Factors (1)

The QiTASC tool framework overcome many challenges

1. Shortened project timeline
2. Higher quality, transparency & deep dive test cases
3. Reduced cost, more test cases in same timeline
4. Test case scripting in natural English language as support for diverse teams
5. Shortened defect life cycle
6. Automated workflow, test case analysis and reporting
7. Risk mitigation, by on-demand regression capabilities
8. Bring lab to home capabilities, remote manual testing



Critical Success Factors (2)

intaQt® covers all aspects of automation

App automation

Native – UI automation

Unique scripting language for all use cases

Command line interface for CI

Automated correlation & verification e.g. bill, ticket, catalog

Protocol & data conformance e.g. 3GPPP, ETSI

Source code quality according to ISO 25010, TIOBE verified

Mobile device automation

Audio/Anno verification/injection e.g. Alexa, Siri, IVR

VOIP-phone automation

Backend automation e.g. SOAP, REST, LDAP, SQL, ssh, sftp

SIM-array integration

Trace integration & verification e.g. Zigbee, CAP, MQTT

Smart UI, scheduling, git client integration

Roaming automation

Web – UI automation

Automated reporting e.g. HP-ALM, Jira

Attenuator automation 2G/ 3G/ 4G/ 5G

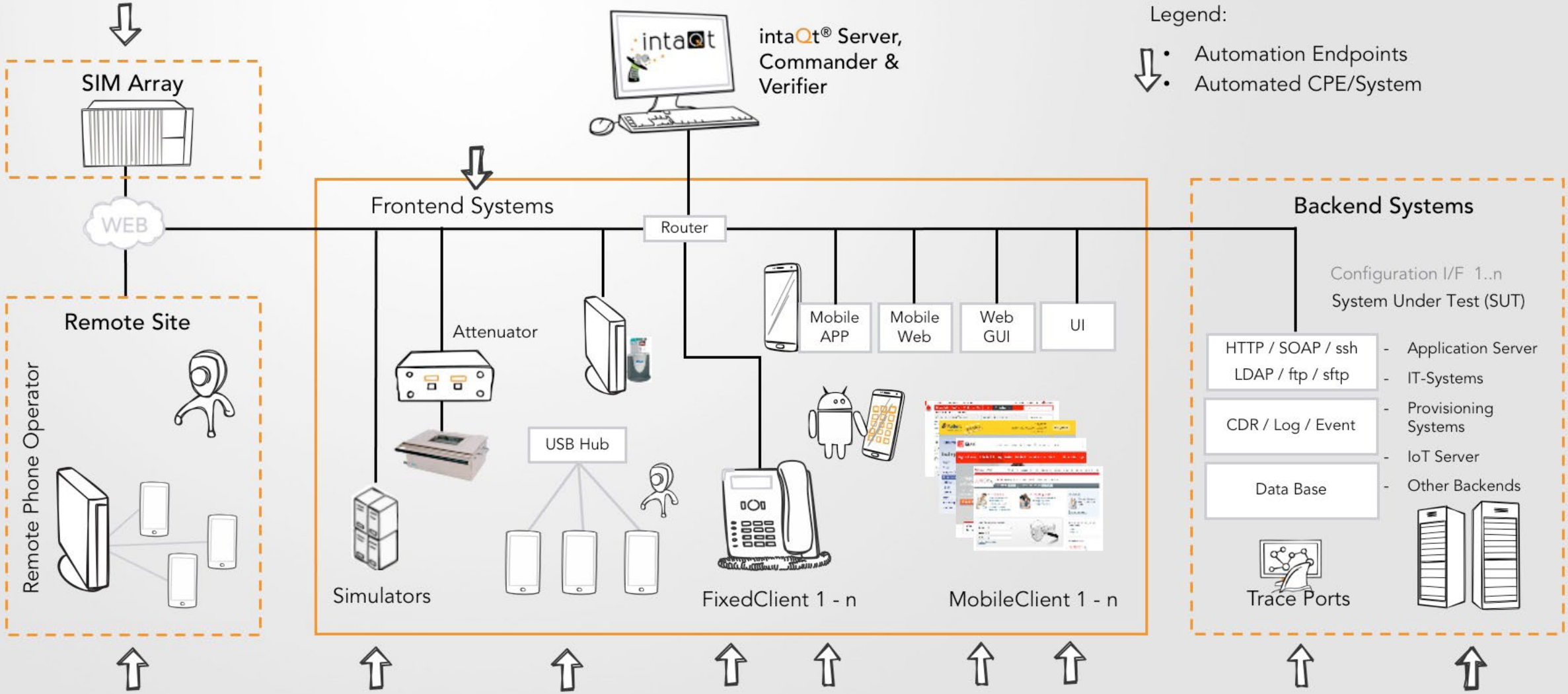
IoT & robot automation

Remote access automation

Online documentation docs.qitasc.com

Critical Success Factors (3)

End-to-end use case with deep dive through protocols



Critical Success Factors (4)

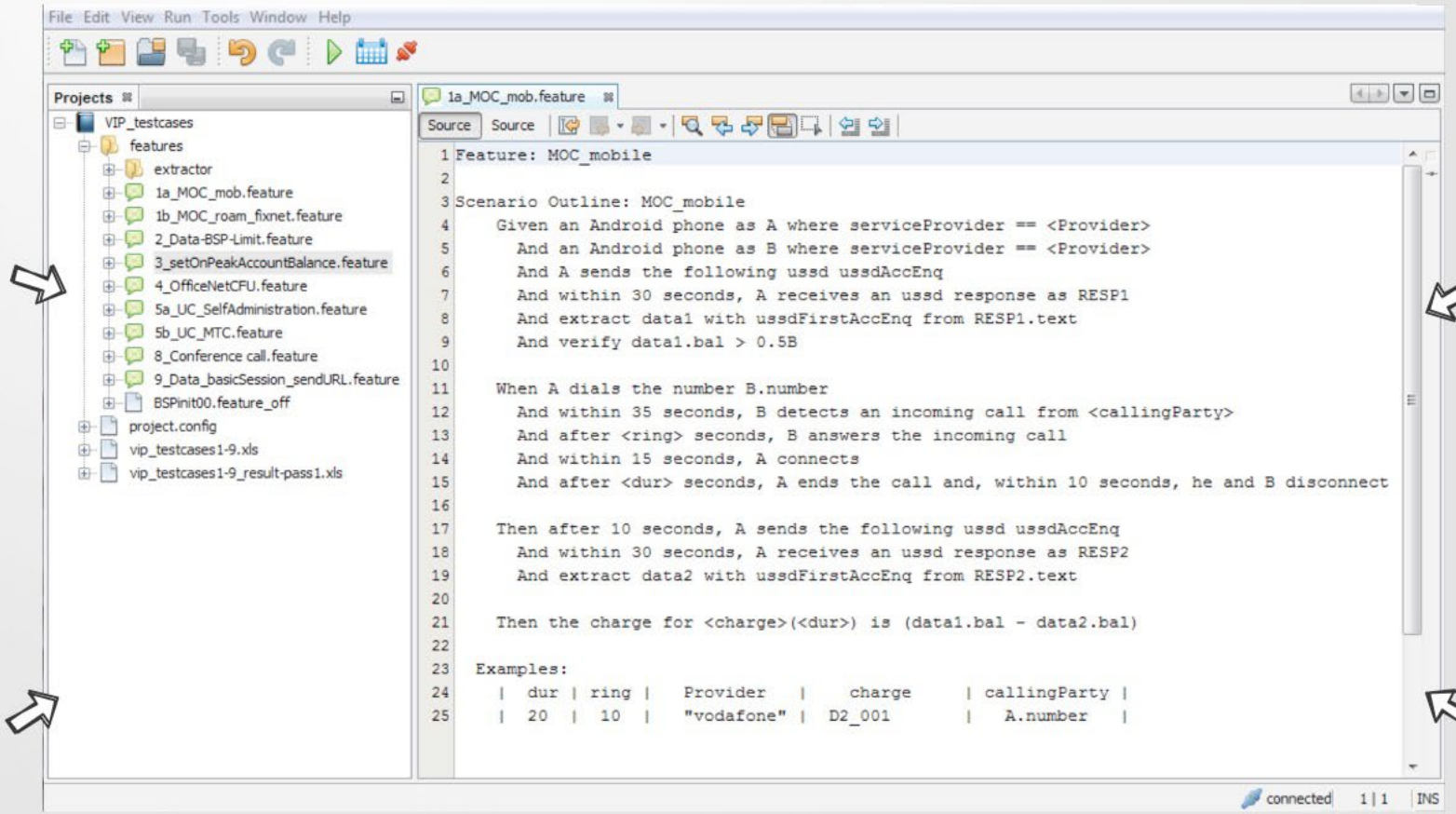
Simple scripting, anybody is able to understand, modify and sign-off test cases

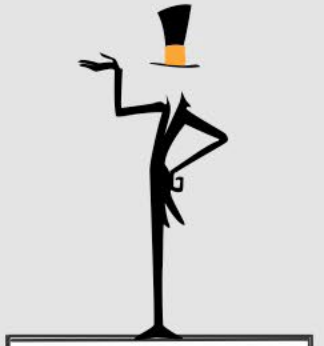
intaQt® executable tests are written in almost natural English language.

No Java®, Ruby, other programming language know-how is needed!

Business Process Expert

Tester





System Expert

Integrator

More than a tool: Combine our products as part of the SDLC

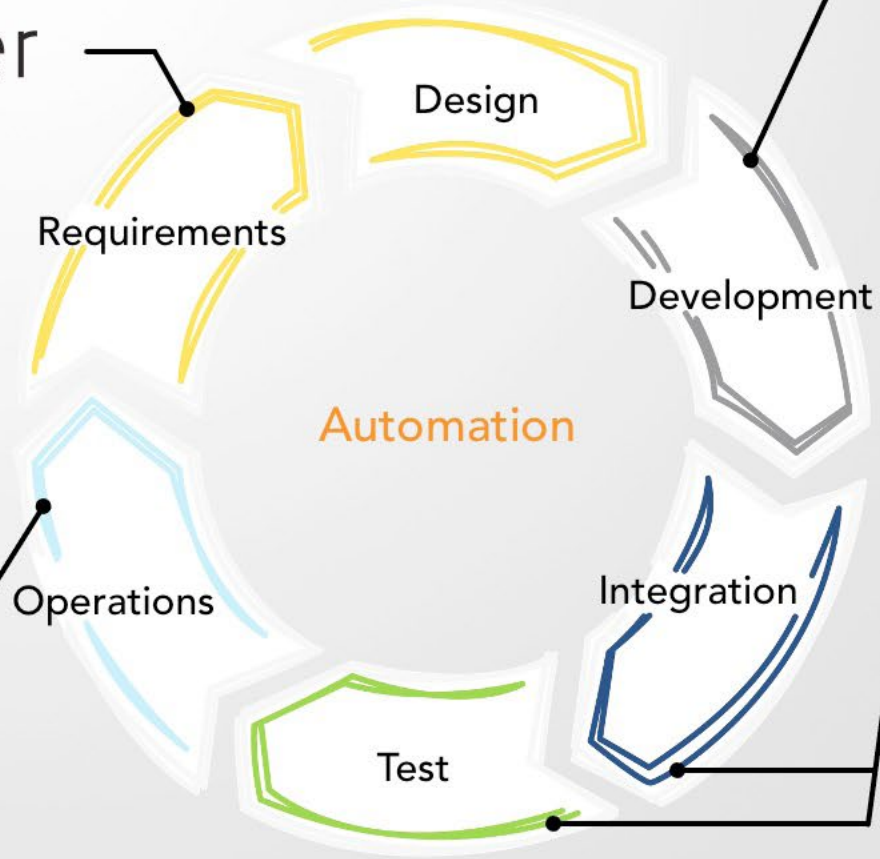
model-builder

Use case modelling tool to generate automated test cases.

intaQt® for active probing & monitoring during operation.

conclude

Reporting Server provides dashboards & filters features, combined with automated upload for HP-ALM/Jira.



TIOBE/TICS

Partner for code quality analysis according to ISO 25010, generates project dashboard code quality level.

intaQt

Automation tool for any digital business use case (esp. telecom, IOT, digital transformation).

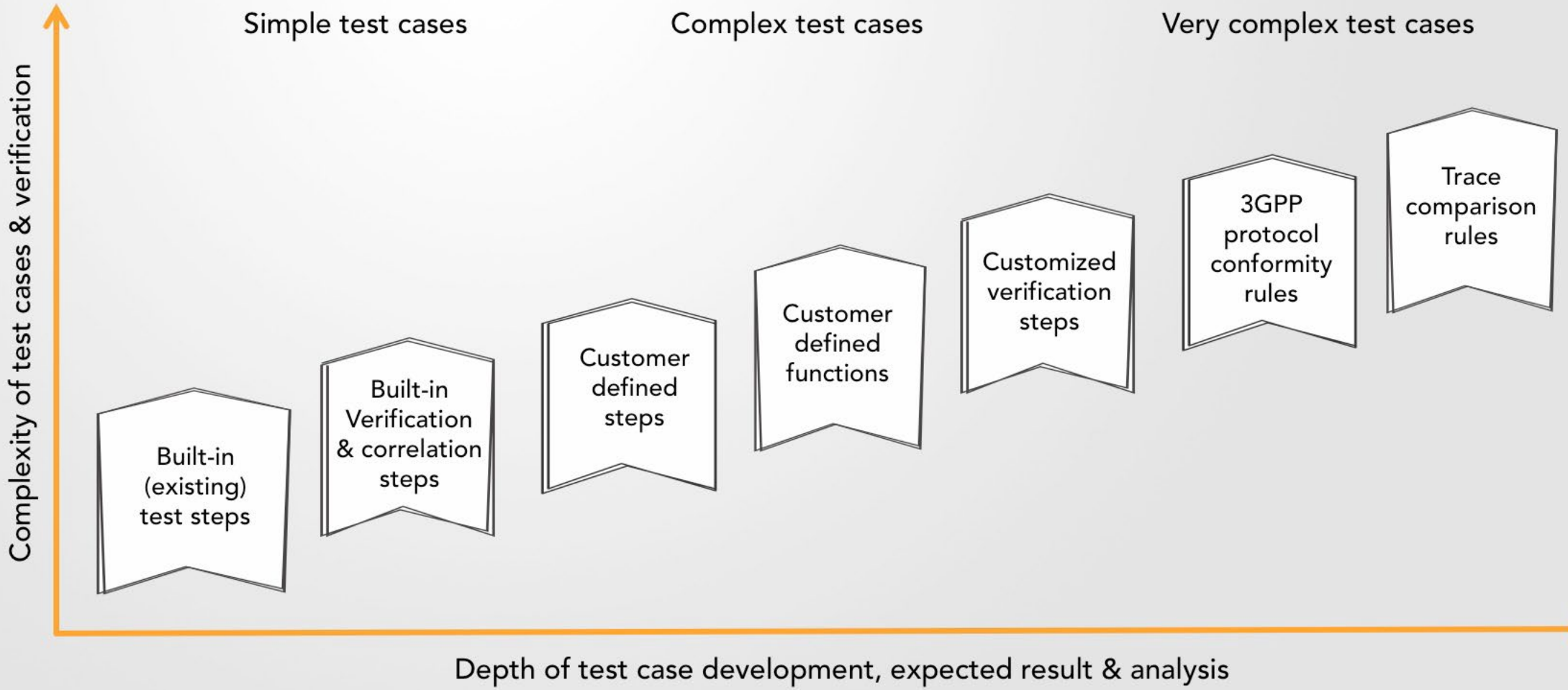
&

cheQ

Compares & verifies traces automatically.

Critical Success Factors (6)

Level of test case development and analysis can be freely defined



Critical Success Factors (7)

Same automation solution across all project phases drives synergies

New Features

Software Update

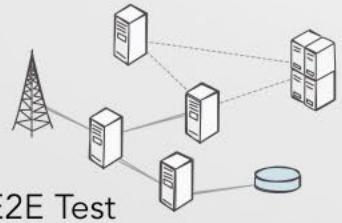
Test Environment availability

Configuration & Tariffs

Proof of functional compliance

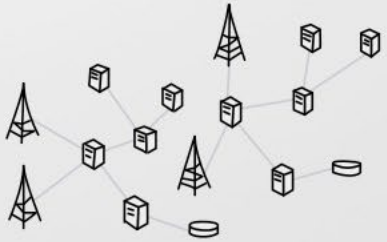
Reuse synergy gain

Factory Acceptance | Integration Test | Type Acceptance | Field Acceptance | First Site Application | Ongoing Operation



E2E Test

Data Verification

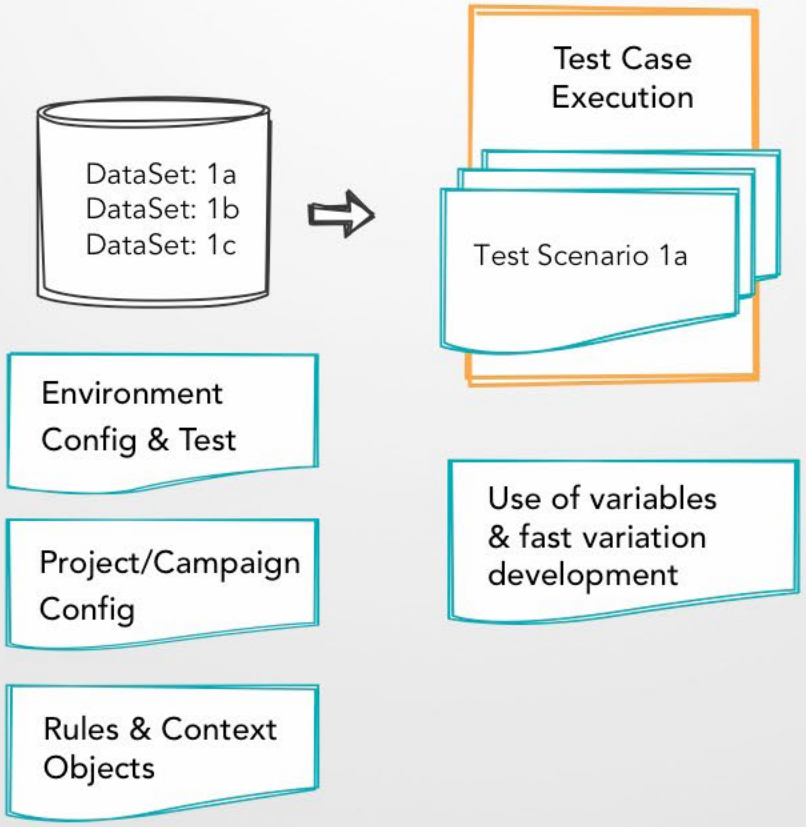


Regression Test

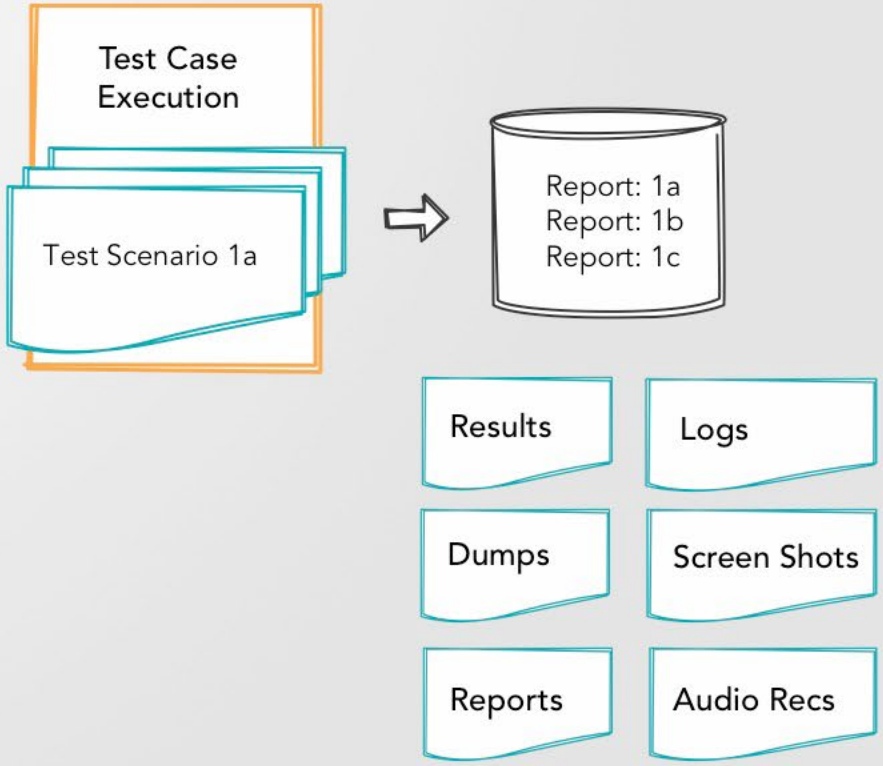
Active Probing

Data driven test case variations via examples and audit proof reporting

Data driven test attributes and scenarios



Summary reports with drill down capability

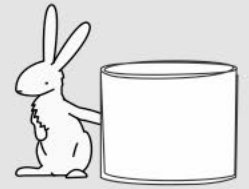


Critical Success Factors (9)

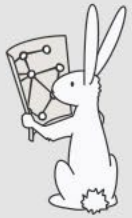
Continuous intaQt® improvement and project specific features

- App automation
- Native – UI automation
- Unique scripting language for all use cases
- Command line interface for ci
- Backend automation
- Protocol & data conformance
- Mobile device automation
- Source code quality according to ISO 25010, TIOBE verified
- VIOP-phone automation
- SIM-array integration
- Trace integration & verification
- Automated correlation & verification
- Smart UI, scheduling, git client integration
- Roaming automation
- Web – UI automation
- Automated reporting
- Attenuator automation
- IoT & robot automation
- Remote access automation
- Online documentation
- Audio/Anno verification/ injection

New features



Resource database

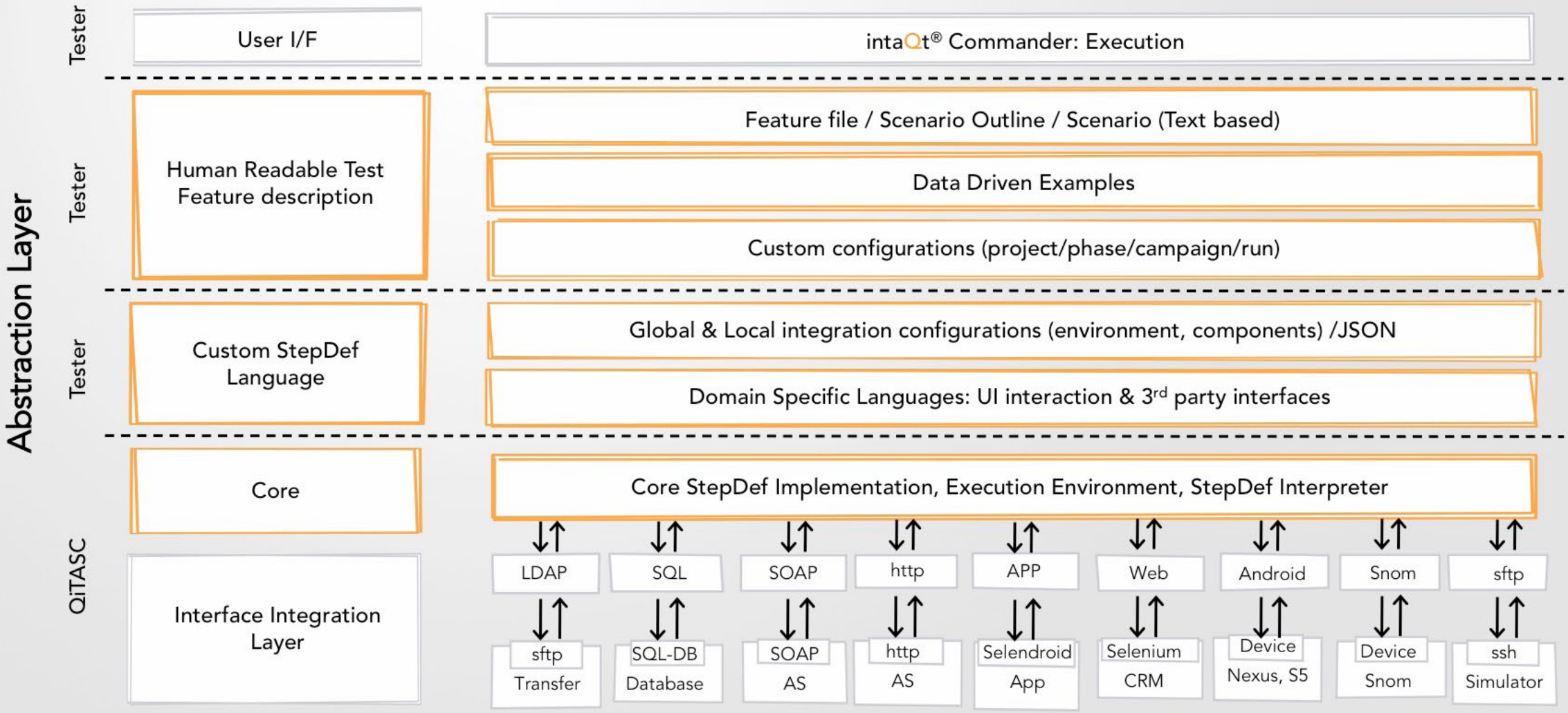


Trace comparison

Remote manual testing

Critical Success Factors (10)

Test Case Maintenance optimized due to smart abstraction layers



Flexible Business Models

Managed Service Testing

Project is handed over to QiTASC

QiTASC provides licenses, hardware and processes to maintain the project

Customer receives results

Provide Source Code

Customer purchase intaQt® source code and develop its own tool framework

QiTASC provides training & coaching

The code quality of the intaQt® software is B-Level measured in TQI according to ISO 25010

Licenses & Professional Service

Customer purchase intaQt® license, conQlude & tools

QiTASC supports with training and coaching

Customer does planning, test scripting, execution & reporting

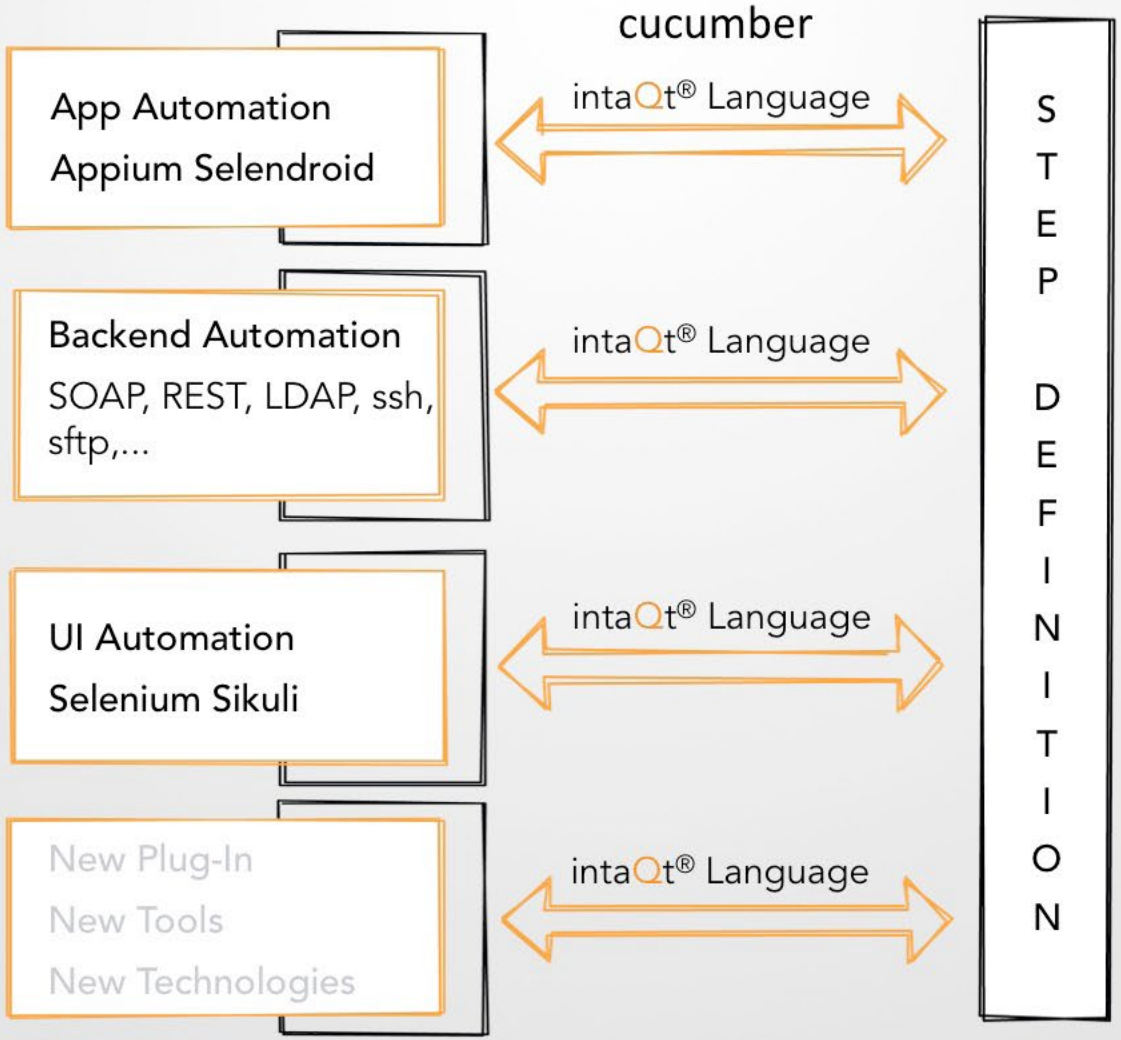
Testing Project

Customer lack resources

Project is handed over to QiTASC; planning, test scripting, execution, reporting done by QiTASC

Customer receives result & report

Integrate Open Source tools where it makes sense



QiTASC has developed a simple and intuitive language

We encapsulate 3rd party tools and provide our own language. A tester does not need to know Java®, Python® or any other programming language.

The intaQt® language is the same...

... regardless which 3rd party tool runs in the background

Same language for:

- UI control
- App control
- web control
- interface control
- workflow control
- Trace integration
- CDR verification
- etc.

Independent and focused

1. Vendors of IT & Telecommunication systems do their main business with HW and Application Software; QiTASC offers mainly services and tools for "End to End" testing and verification.

2. QiTASC is not in competition with big IT & Telecommunication HW and SW vendors.

3. QiTASC provides a quality check as an objective, third party.

4. QiTASC is only focused on testing, nothing else.

Critical Success Factors (14)

Team know-how: testing requires a very broad knowledge base

Development languages:

Kotlin, Java, C++, C, GO, Rust, Python, Clojure, Ruby, Elm, SQL, Haskell, Typescript, SciPy, NumPy...

Telco & IoT:

Prepaid, Home Area, IP-Centre, Virtual Private Network, Tariff Testing, Customer Relationship Management, Value Added Service, Convergent Charging, Mobile-Centrex, Multi-SIM, Policy & Charging Rules Function, Over The Air Service, Mobile Payment, Point of Sales, Postpaid, Supplementary Services, Core Network & IMS interoperability, Charging Conformity, IFRS Conformity, Internet of Things „End to End" Testing, Tarif Verification, SBC & Data Verification, etc.

IT Know-how:

Amazon EC2, VM Ware, OVirt, KVM, Virtual Box, Vagrant, Kubernetes, Docker, Cisco, Ruckus, Qnap, Ceph, GlusterFS Ansible, Terraform, git, OpenVPN, IPSec, TCP/IP

Agile & Continuous Integration & Test:

Test Driven Development, Behavior Driven Development, Continuous Integration & Delivery, Continuous Acceptance Testing, Pair Programming, DevOps,...

Methods & SW know-how:

TSA+, Verified Design By Contract, UML, BPMN, Mathematica, Maple, Cucumber, Selenium, Appium, Sikuli,...

Protocol know-how:

SOAP, REST, HTTP, JMS, LDAP, MAP, CAP, INAP, SS7, Diameter, SIP, ISDN, ftp, sftp, ssh, Zigbee, Dect,...

Architecture know-how:

Client Server, Service Oriented Architecture, Domain Driven Design, Aspect Oriented Programming, Event Streaming, The Elm Architecture, ML & AI,...

Architecture know-how:

Client Server, Service Oriented Architecture, Domain Driven Design, Aspect Oriented Programming, Event Streaming, The Elm Architecture, ML & AI,...

Electronics & Mechanical engineering & High-frequency:

High frequency, Attenuation, USB, Audio, CAD, Eagle, CNC,...

Mathematics:

Quantum Field Theory, Path Integrals, Group Theory, Differential Geometry, Set Theory, Analysis and Calculus, Statistical Physics, Topology, Category Theory, Signal Processing

Vendor know-how:

Nokia Surepay CCS, Huawei CCS, i-new MVNO, Optiva CCS, Nokia PCRF, Oracle IMS, Ericsson IMS, Nokia IMS, ...

Reduce Bottlenecks

The testing process consists of several phases

Every phase has its own bottlenecks:

- Test environment set-up and prerequisites
- Scripting of necessary test cases
- Collect evidence & analyse test cases
- Reduce defect resolution
- Report test cases

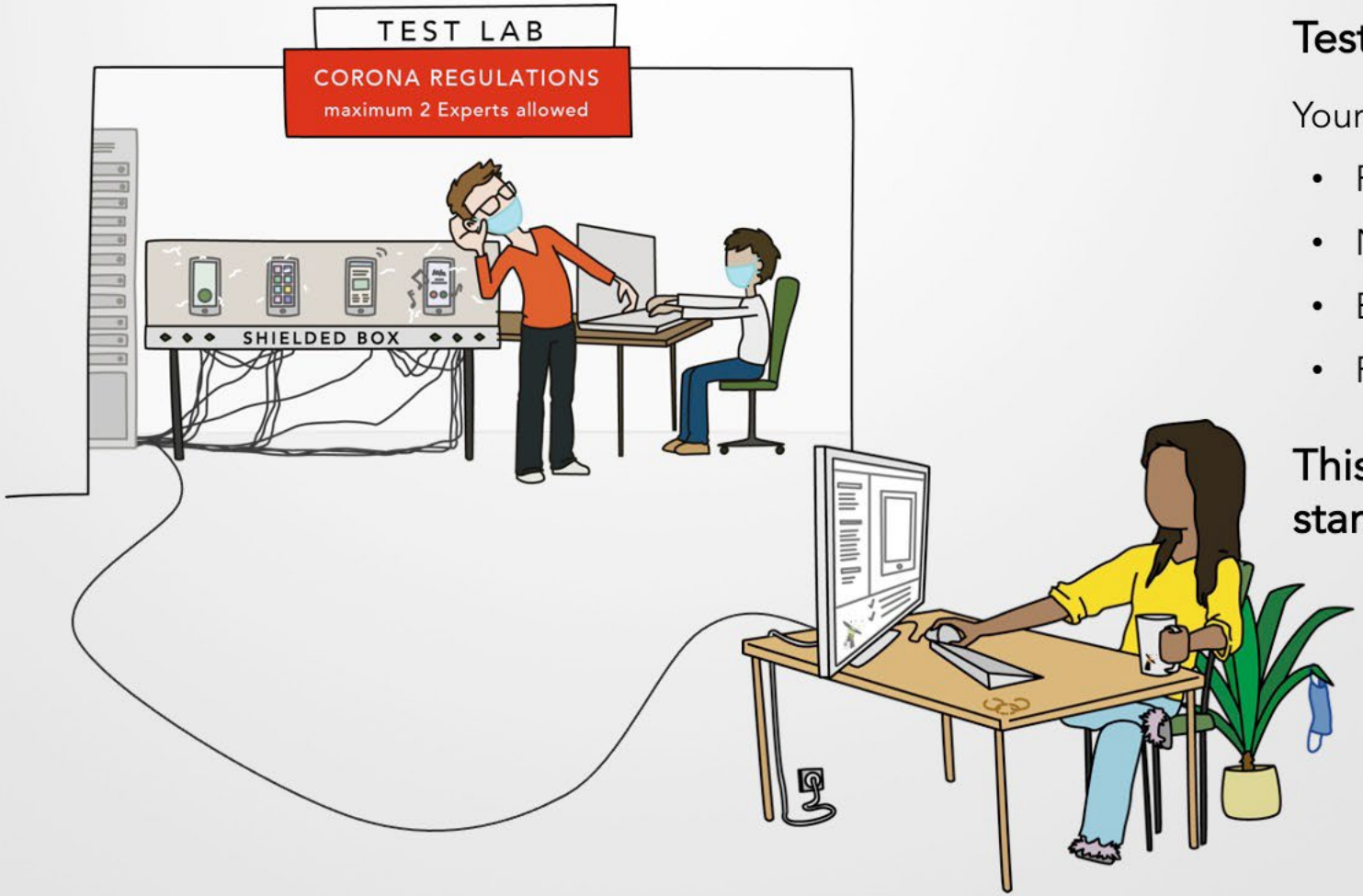
All of above issues must be solved, otherwise the automation process is slowed down.

⇨ Automate all activities

⇨ Overcome the challenges of test automation

⇨ Fulfil the expectations

Remote Manual Testing



Testing during Corona

Your advantages with QiTASC:

- Full testing capacity restored
- No outlay for additional boxes or devices
- Engineers can work from home
- Full audio signal exchange

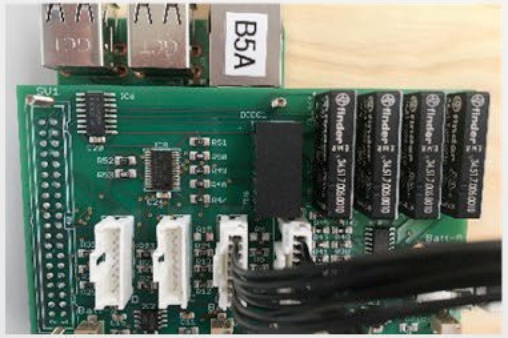
This experience can be used as starting point for test automation!

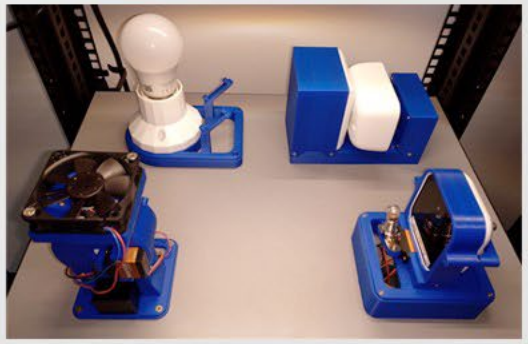
Support for any device

Manual test projects and manual testing activities require support for any kind of devices

QiTASC has developed own electronical components and 3D-housings to standardize integration of:

- IOT devices
- Smartphones
- 3D Housings & Controller
- Sniffer & Trace components





Your advantages of analyzing with cheQ®

Test Automation UI

QM Tools
e.g. Jira

Automated upload

TC, Evidence
PCAP & Report

PCAP trace
QiTASC integrated

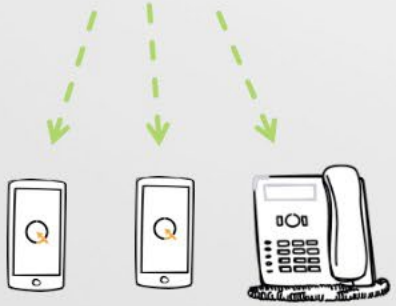
Comparison report

intaQt Server

- Run test case
- Collect evidence

Reporting Server

Dashboard and consolidated view



PCAP trace
Standalone

Comparison report

Trace Server

cheQ – an intelligent, automated trace comparison tool

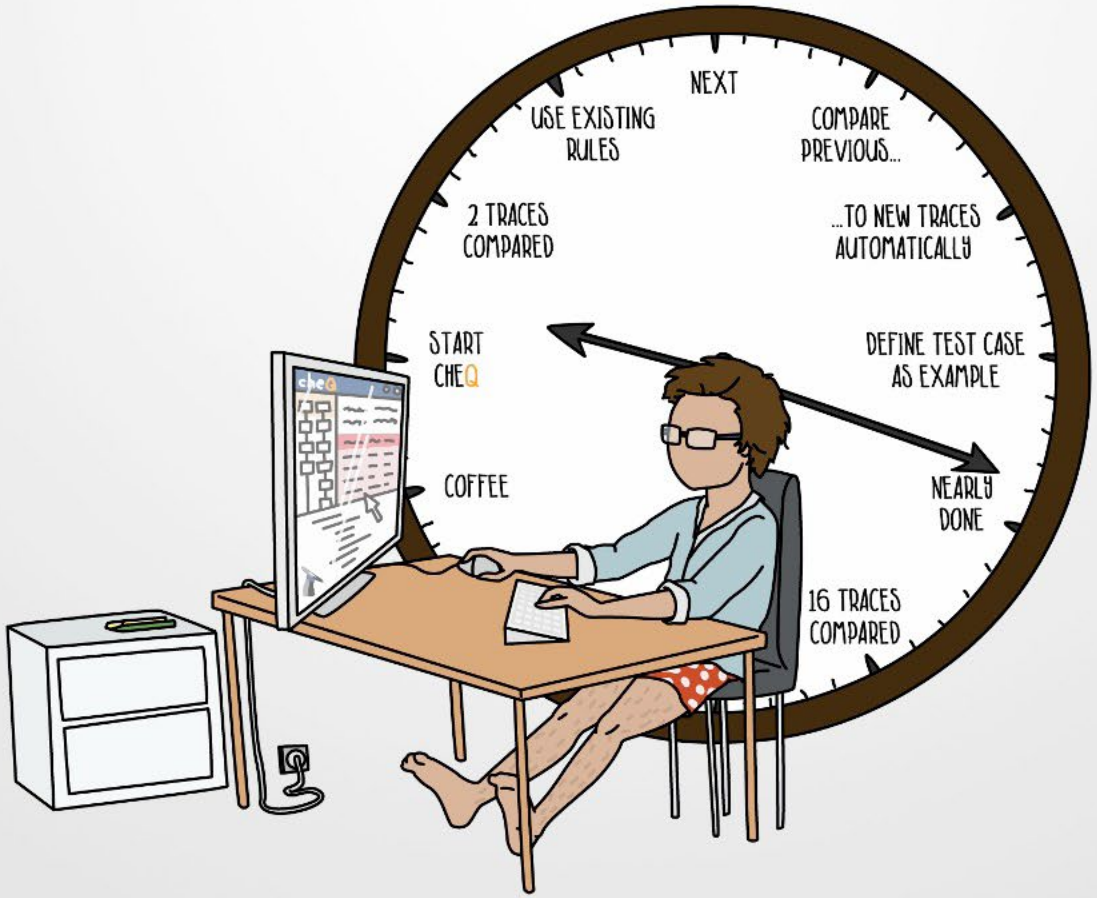
Use as stand-alone tool or as part of continuous testing and analysis process

smart naming & configuration of environment related data

Customizable comparison rules.

Easy to use web UI

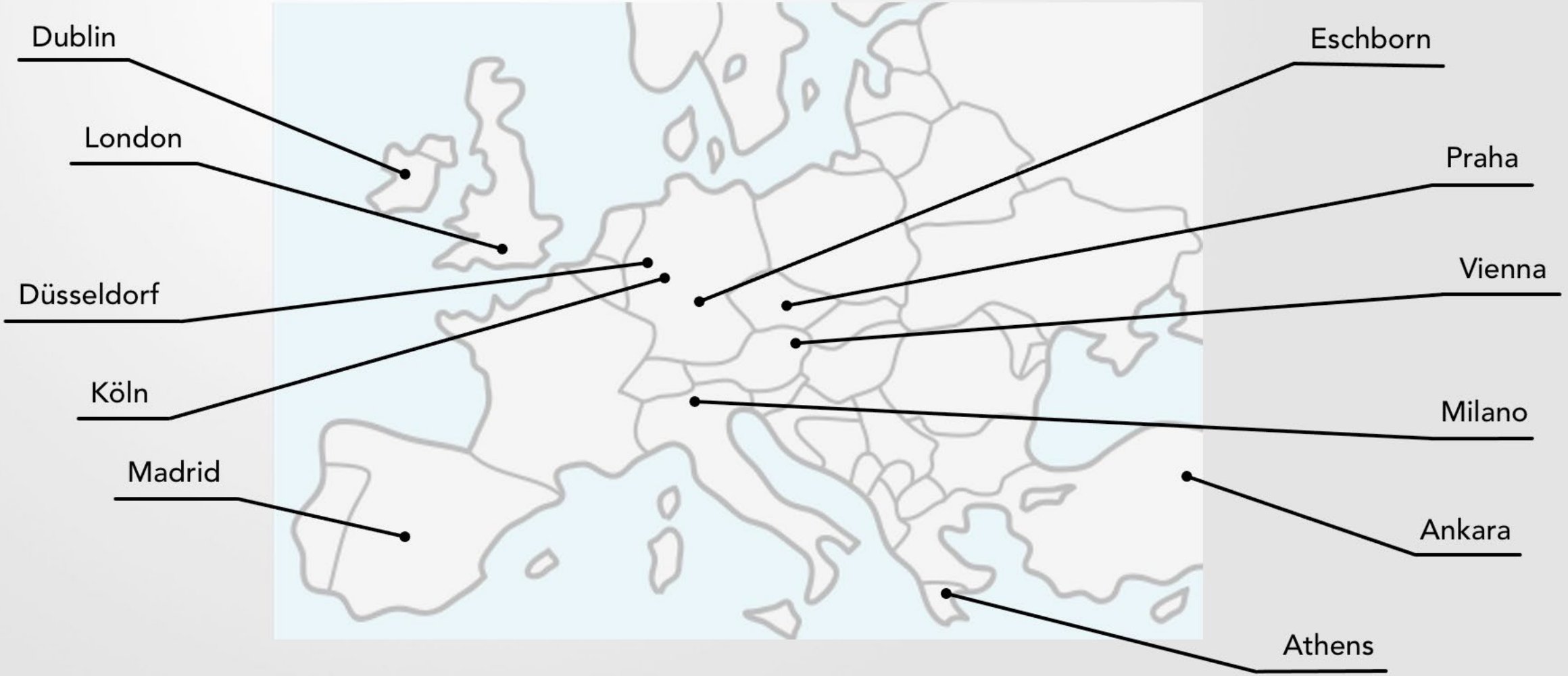
Protocol conformity



Our innovation: cheQ®

- Web based PCAP comparison tool
- Define test cases with an example of how a trace should look
- Select and filter packets you are interested in
- Advanced comparisons – customize test case with expected properties on both sides and check they match
- Easily copy and paste existing comparison rules to other test cases
- Keep a record of previous comparisons

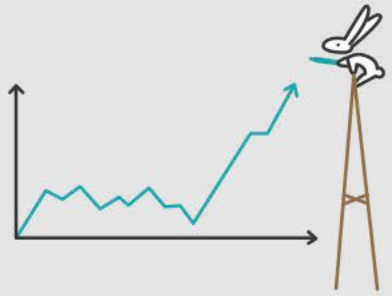
Proven Success, Footprint



Critical Success Factors (21)

Testing Experience

- Online Charging System
- Convergent Charging System
- Home Location
- IP-Centrex
- Mobile-Centrex
- Virtual Private Network
- Tariff Testing
- Customer Care System
- Value Added Service
- Multi-SIM
- Policy & Charging Rules Function
- Over The Air Service
- Mobile Payment
- Point of Sales
- Supplementary Services
- Core Network & IMS Core
- Circuit Switched Core
- Packet Switched Core
- App Automation, Android & iOS (more than 100 Apps)
- Evolved Packet Core & HGW
- SBC & Data Verification
- Charging Conformity
- "End to End" Testing,
- Prepaid & Postpaid Tariff Verification
- Telephony Application Server
- IFRS S15 Conformity
- App Data Usage & Charging Verification
- Protocol Conformity for Data Core
- Telco Cloud Verification
- Internet of Things "End to End" automation
- Internet of Things Protocol Verification



Different Setups

intaQt Studio
intaQt Server
VPN Client

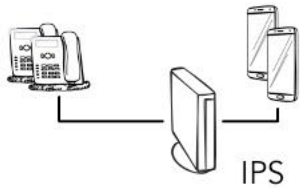
intaQt Studio
VPN Client

intaQt Studio
VPN Client

Internet

Customer Premises

VPN



IPS

Customer Premises

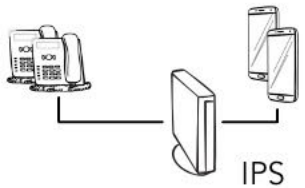
VPN

Gitlab

VM intaQt

sQedule
Bots

conQlude



IPS

Cloud hosted

VPN

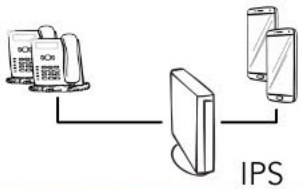
Gitlab

VM intaQt

sQedule
Bots

conQlude

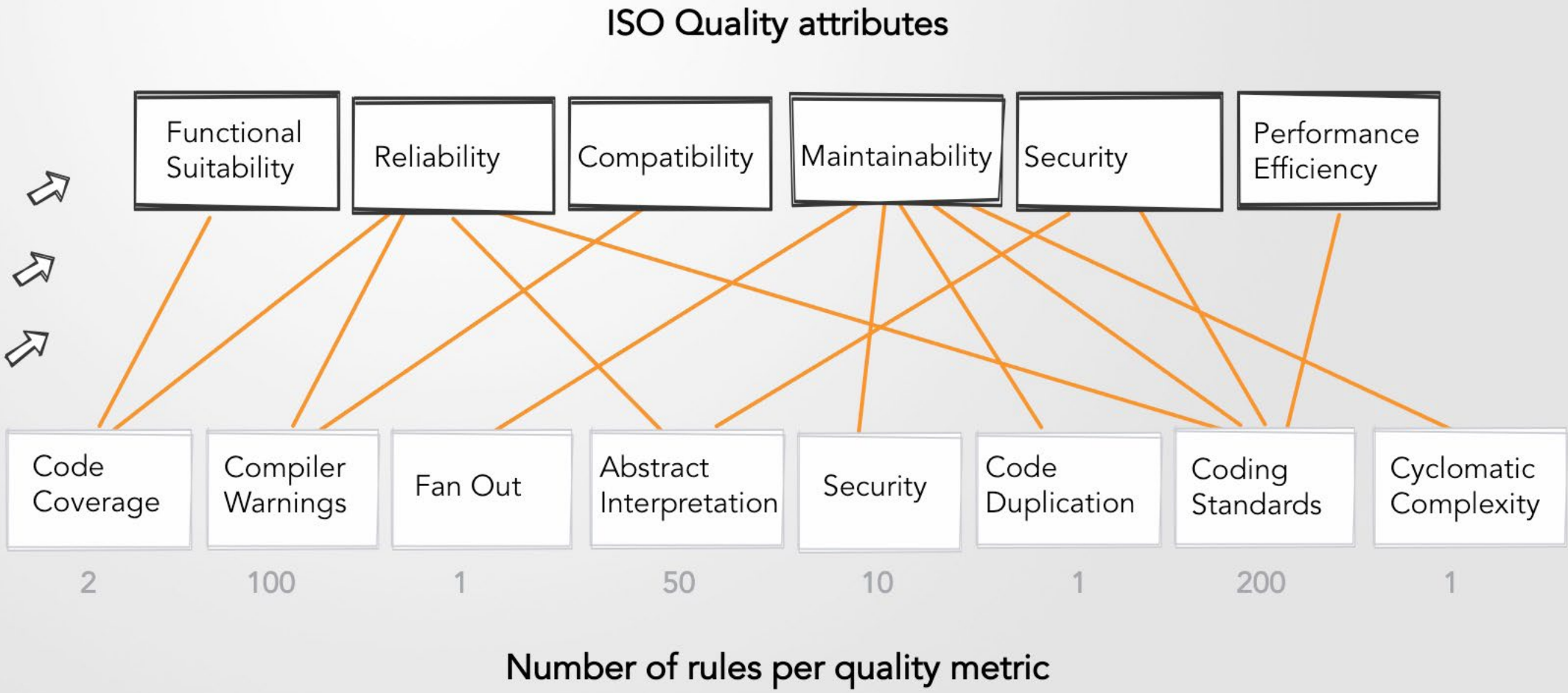
Customer Premises



IPS

VPN

Excellent code quality: Quality level "B" in TIOBE classification



Source: www.tiobe.com

QiTASC

the magic of testing

The QiTASC team wishes you happy holidays & a successful year 2021.

We would be honored to talk to YOU.

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