WEB TEST AUTOMATION USING TTCN-3 AND MBT

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THE SET-UP

TTCN-3 for Web?
Overcomplexity vs Underperformance
THE HOOK

Telema Document Service
Management of Orders and Invoices

- Structured data
- Many relations
- 2 interfaces: Web and EDI
- High level of automation, time-critical
THE TALE

Web Testing Framework
Layers and Players

Design

TTCN-3 Code

Runtime

MBT

Test cases

TTCN-3 runtime

Adapter API

Web adapter (SA)

Web app API

Selenium WebDriver

Web app (SUT)
THE WIRE

Mapping TTCN-3 to Web Apps
Web Adapter API: Actions

Click a button

type record LogInButton with {encode "id=loginBtn"};
tp.send(LogInButton: {});

Read a label

type String RedTipText with {encode "xpath=..."};
tp.receive(RedTipText: "Hurry");

Text input/output

type String Username with {encode "id=..."};
Web Adapter API: Structures

type record SupplierDataList{
    SupplierHeader supplierHeader optional,
    ...
}
with {encode (supplierHeader) "xpath=...";}

type record SupplierHeader {
    universal charstring supplierName,
    ...
} with {encode (supplierName) "relative=//h3";}
In Action

- Document loaded via EDI
- Generated ID: ELV161011152907
- Test objective: Hurry! This invoice is overdue
- Structured template
- Filtered table:
  - Supplier name: AUTO WEBSUPPLIER 2DOC
  - Reg code: 123456552
  - Supplier ERP code: weba2
  - VAT code: E7965484
  - Bank account: 8976920376 (BANK)
  - Address: Leiva tn.1, Tallinn, 12618, Harjumaa, Estonia
  - Payment reference: 67856587
  - Sum without VAT: 105.00
  - Rounding: 0.01
  - VAT sum: 21.00
  - Sum: 126.00
Problems?

• Management of element **locators**
• Selenium ignoring **out-of-sight** items
• Web **designers**

JavaScript
THE SHUT-OUT

Using Abstraction to Manage Complexity
Talking the Testers’ Language

• Complexity
  • Low level functions of Selenium WebDriver
  • Syntax and semantics of TTCN-3 behavioral constructs

• TTCN-3 SA as abstraction layer above Selenium
• MBT to provide simpler behavior descriptions
• TDL: a version of MBT to define test sequences
  • Drawback: no literal values
To Take Home...

- The **power of TTCN-3** can be applied in testing interfaces that it wasn’t originally designed for.
- Complexities may be **abstracted away** in multiple levels: MBT, TDL, TTCN-3.
- In (web) application testing, there’s an inherent conflict between **designers and testers**.

...*all it takes is a little Confidence.* (The Sting)
Thank You!

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