SELENIUM + AT-SPI

The most important project in KDE

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Oh, It's Me

A world in which every application has GUI tests and enjoys quality.

Easy

GUI testing is often a drag. It needs to be made easy to write and easy to run.

Reproducible

Must be somewhat reproducible locally so it is easy to debug and fix.

The Problem

Nothing Ever Happened
for our Software

Research

Pays off

During unrelated research of technology stacks to use for
WS-Discovery in our KIO SMB worker I've stumbled upon
WinAppDriver.

Surprisingly enough just what we need, albeit for the
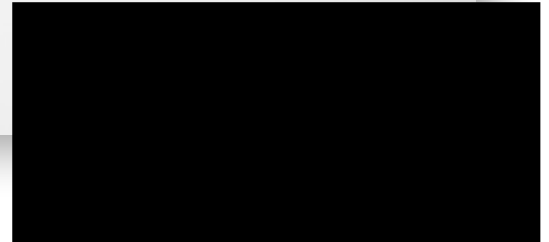wrong platform. But, what if...

Selenium

Popular web-oriented UI automation & testing system.

Server-client architecture.

Client libraries for all the languages.

Appium

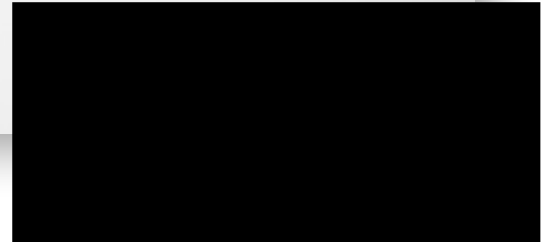UI automation & testing for native/mobile applications.

Built on top of Selenium.

WebDriver

Server component of Selenium and Appium.
Specified by a W3C standard.

AT-SPI

De-facto standard accessibility framework on Linux.
Provides a toolkit-independent way of inspect and
controlling UIs.

Wait, Wait...
Accessibility?

Putting all the Trees Together to Form a Forest

You can see the forest on the right ->

Client Libraries
Appium & Selenium

App-centric and supporting a multitude of languages.

HTTP/JSON
WebDriver

The client libraries talk over a HTTP REST protocol with the WebDriver.

AT-SPI
Application

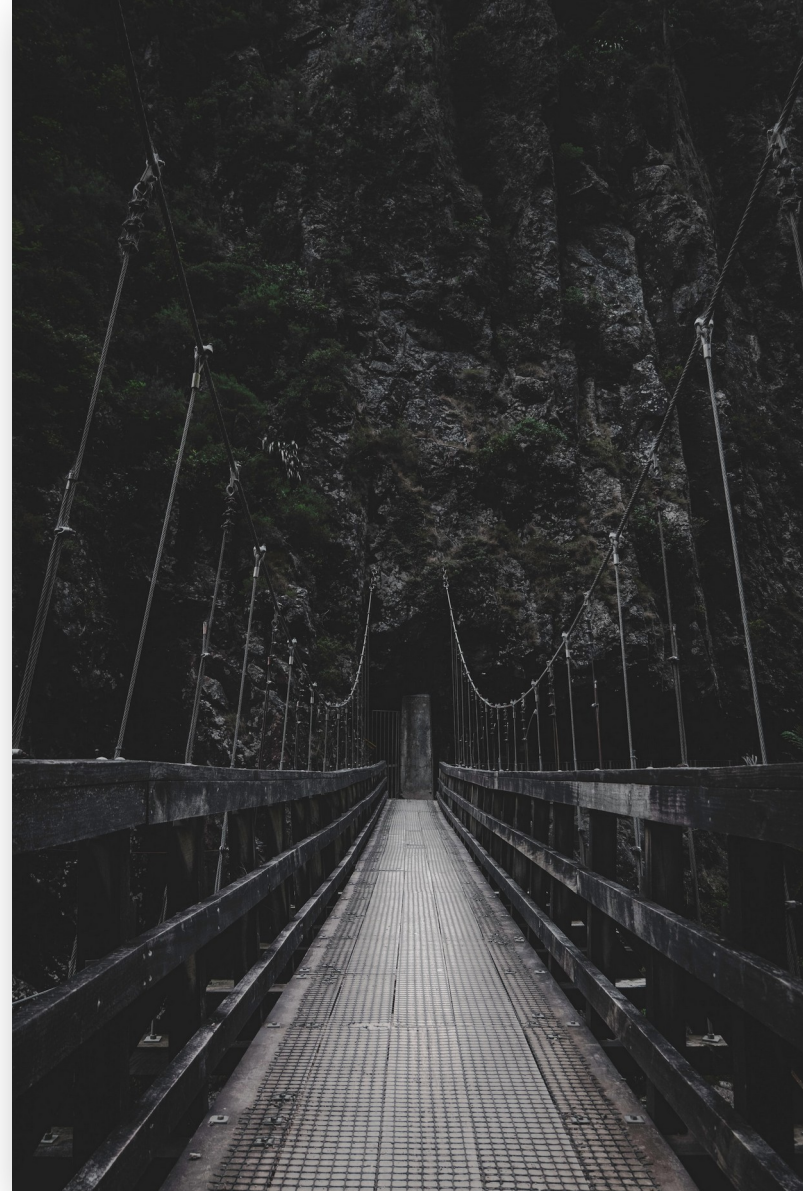The WebDriver talks over AT-SPI with the application to actually conduct the automation.

Automation

Test Script → Appium Client → Selenium Client → JSON WebDriver → AT-SPI → Application

Automation

Test Script → Appium Client → Selenium Client — JSON → WebDriver — AT-SPI → Application

???

???

Bridging the Gap

https://invent.kde.org/sdk/selenium-webdriver-at-spi

WebDriver

Framework

Simple wrapper tech to facilitate test running

Driver

Written in Python with some assistance from C++

Wayland

Tests are run in a nested Wayland session
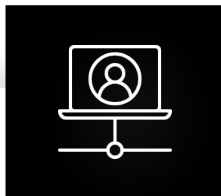
Screen Recorder

The Wayland session is screen recorded
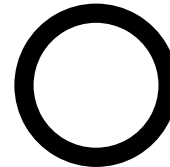
Our WebDriver is a Bunch of Things

LIVE
DEMO

The AT-SPI Ecosystem
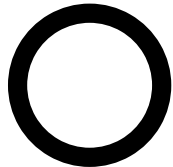
AT-SPI

The Protocol
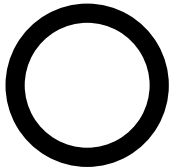
Accerciser

A inspector tool for AT-SPI

Application

Needs to implement AT-SPI. Effectively all do through toolkits

Accerciser

Accerciser

Code

I Need Your Help!

https://invent.kde.org/sdk/**selenium-webdriver-at-spi**/-/wikis/writing-tests

https://**apachelog.wordpress.com**/2022/12/14/selenium-at-spi-gui-testing/

The End!

Thanks for paying attention. If you haven't paid attention thanks for enjoying the AC.

It's a cruel joke that this slide contains a lake with what appears to be nippy fogy weather while we are suffering in this heat!