



Mobile App Testing

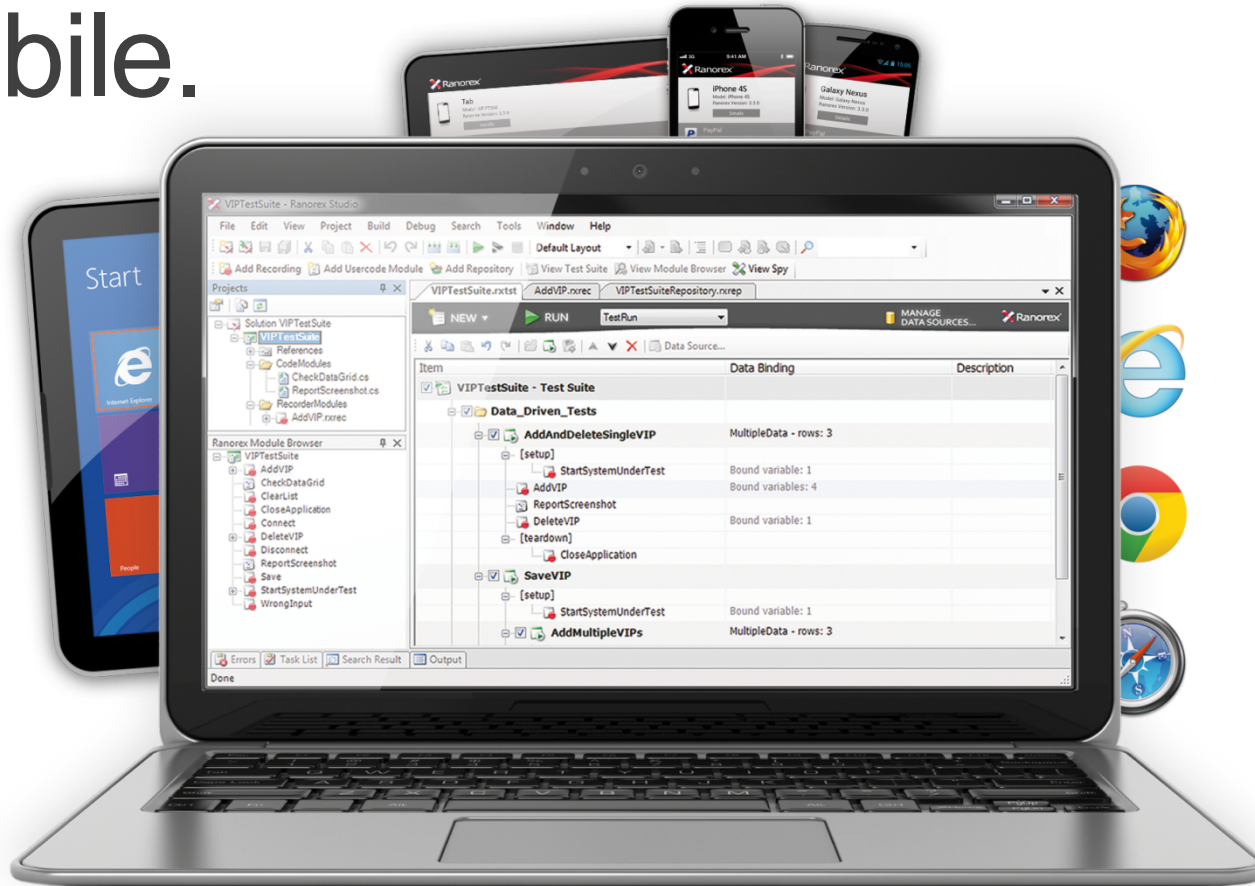
Software Test im mobilen Umfeld
ATB Expertentreff, Wien, 2013

Presenter:

Christoph Preschern (cpreschern@ranorex.com)

- » Ranorex Company Overview
- » Mobile Devices – Marktübersicht
- » Mobile OS – Was ist anders?
- » Unterschiedliche APP Typen
- » LIVE Show Case
- » Behind the Scenes – UI Objekterkennung
- » FAZIT

Automated Testing of Desktop. Web. Mobile.



References



» **+1200 Customers in +50 Countries**

- » Philips Medical System (USA)
- » Intel (USA, India, Malaysia)
- » TomTom (USA, Belgium)
- » Siemens Healthcare (Germany, Singapore, USA)
- » CISCO (USA)
- » Generali Versicherungen (Switzerland)

» **AUSTRIA**

BRZ, Kapsch TrafficCom, B&R, ORF, Otto Bock, Omicron, Grazer Wechselseitige, Knapp AG, Anton Paar, Austria Card, Commend, Siemens, Unycom

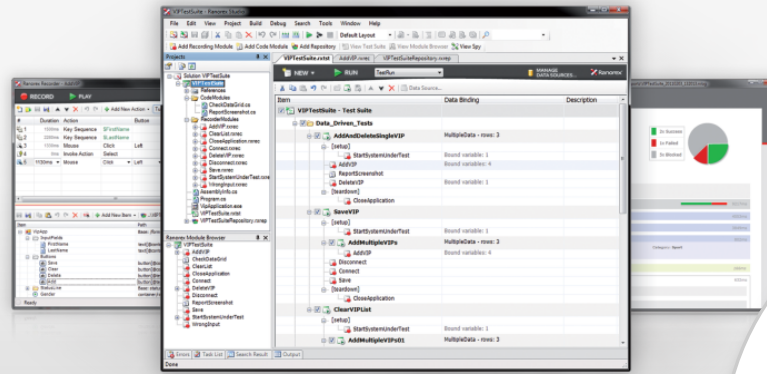
References



Ranorex Overview



TOOLS



Plug-In

RANOREX LIBRARY (.NET API)



419 MIO

Mobile Devices, Q2/2012

„**9** von **10 APPs** kostenlos“

1.2 MIO APPs    

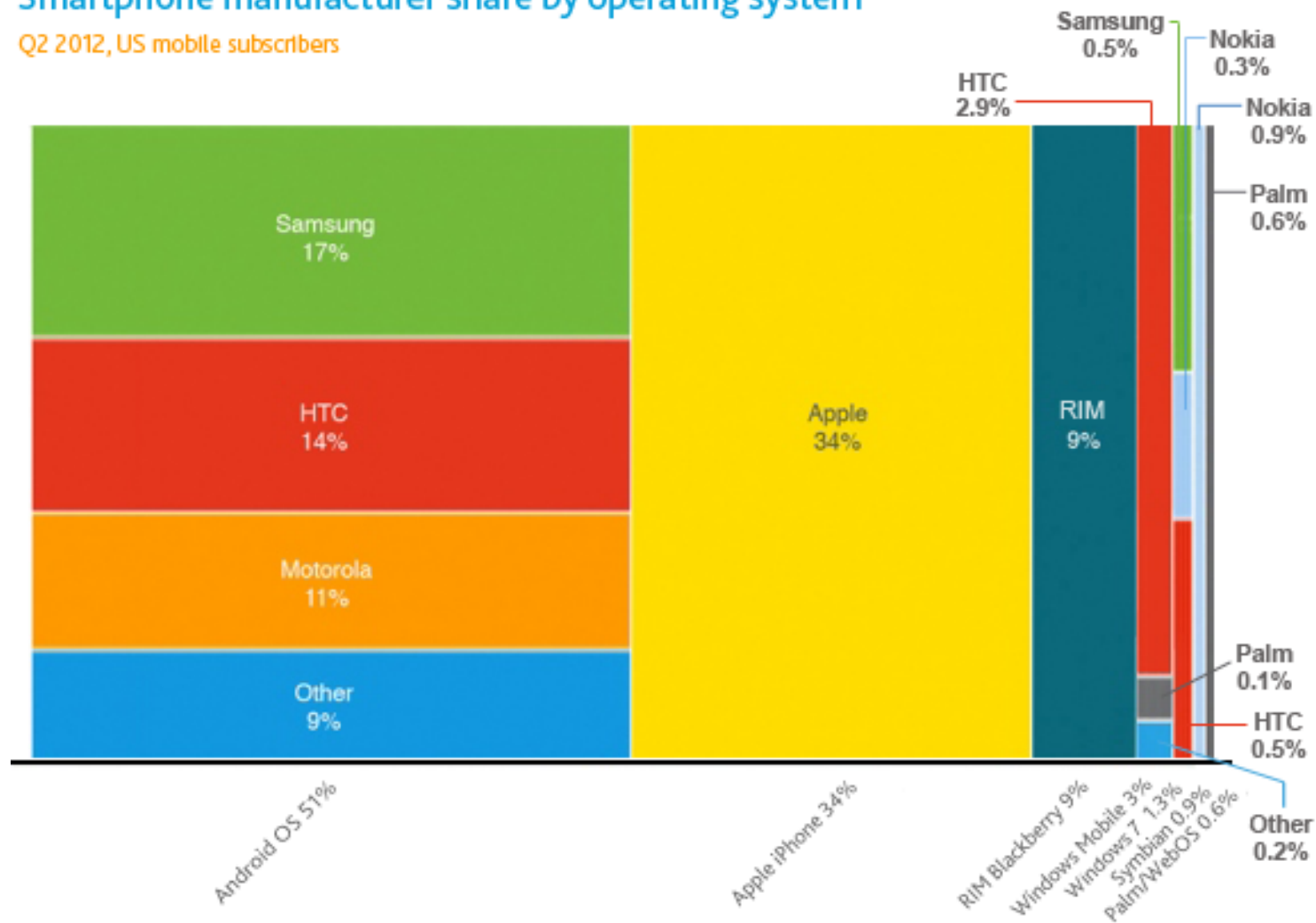
200 K  **Enterprise Apps**

Marktübersicht

Geräte Hersteller

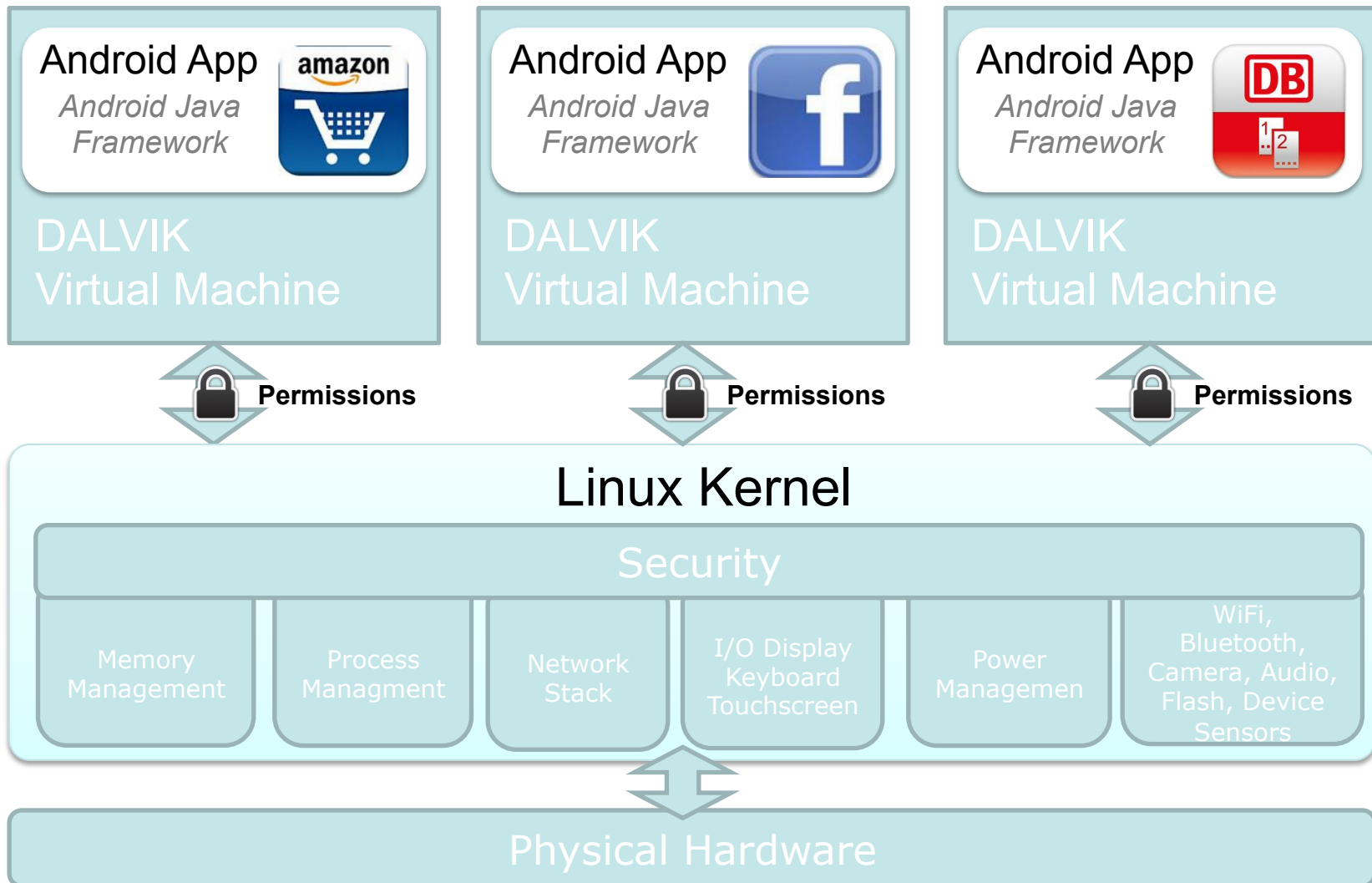
Smartphone manufacturer share by operating system

Q2 2012, US mobile subscribers



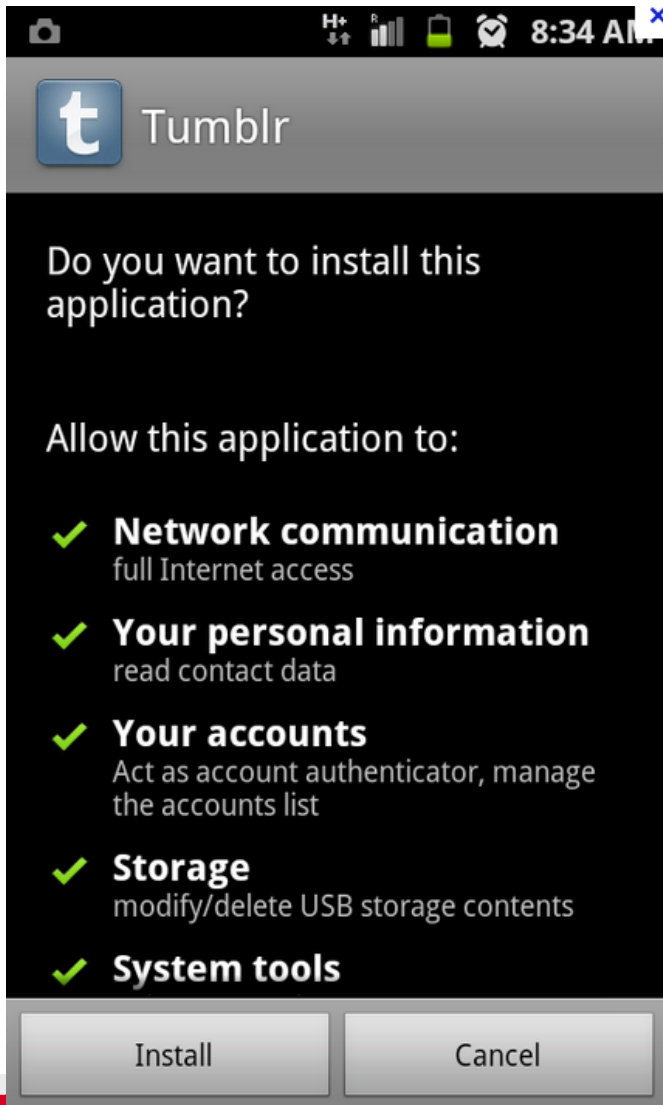
Mobile Operating System

Was ist anders?



Mobile Operating System

Was ist anders?



Einschränkungen f. DEV

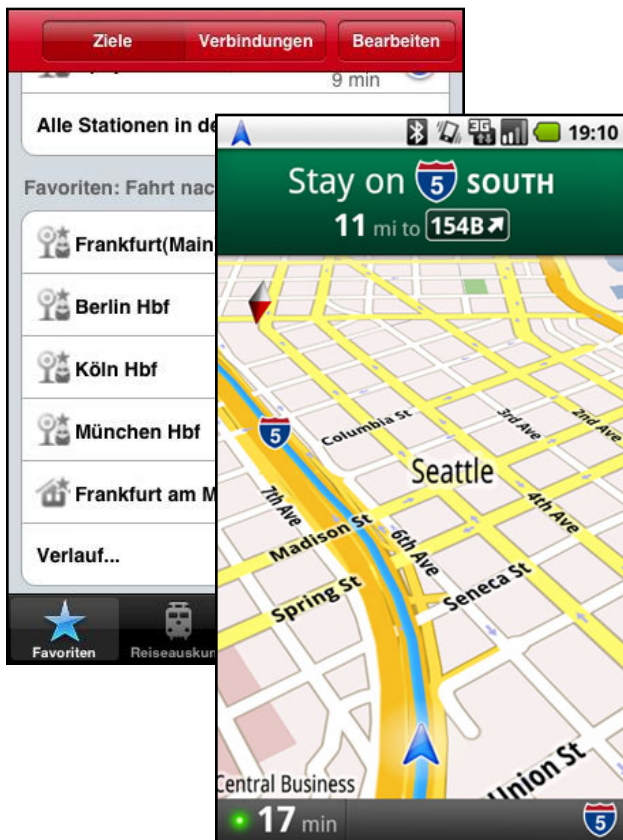
- Keine „einfache“ Prozessübergreifende Kommunikation
- Kein direkter Zugriff auf Kernkomponenten (Nur definiertes Interface, eingeschr. Durch Permissions)
- Kein klassisches Multi-Tasking vorhanden

Einschränkungen AUTO-TEST

- Erschwert „Real User Simulation“
- AUTO Test ohne APP Anpassungen schwer möglich

Typen von APPs

Native Anwendungen



- OS spezifische Entwicklung
- Direkter Zugriff auf Hardwarekomp. (GPS, WIFI, Kamera, etc.)
- Verfügbar über versch. Stores
App Store, Google Play, Windows Market (iOS Enterprise App Stores)
- Installation von SUT/APP auch über USB möglich
- Programmierung in
 - Objective C (iOS)
 - Java (Android)
 - C# (Windows 8/Metro)

Typen von APPs

Browser-basierte Anwendungen



- Für Mobile Geräte optimierte Web Seiten
- Unabhängig vom Betriebssystem
- Unabhängig vom Browser
- Kein Market notwendig
- Keine Installation/Deinstallation
- Internetverbindung erforderlich

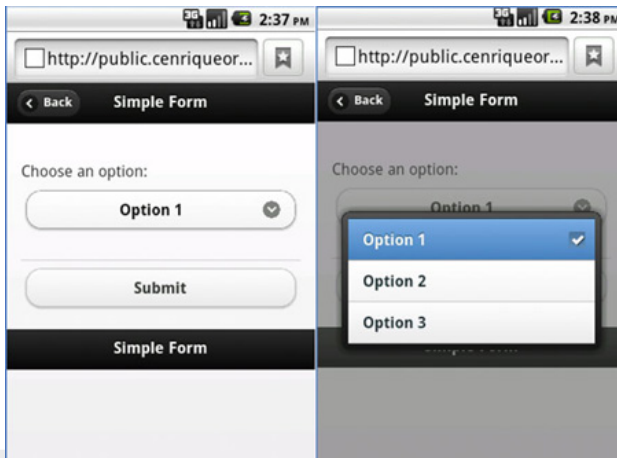
Typen von APPs

Hybrid Anwendungen

Native Browser APP

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17 <title>Automate Testing of Desktop, Web and Mobile Software - Ranorex</title>
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19
20 <meta name="verify-v1" content="K72j021W...Signal/9h5070b4=" />
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- Mischung aus Web und Native APP
- Web-Content wird in Browser-Ähnlichen APP verarbeitet
- Web-Content am Gerät gespeichert
- Device- und Betriebssystemunabhängig
- Schalenlieferant „PhoneGap“
- jQuery Mobile, Sencha
- Zugang über APP Market

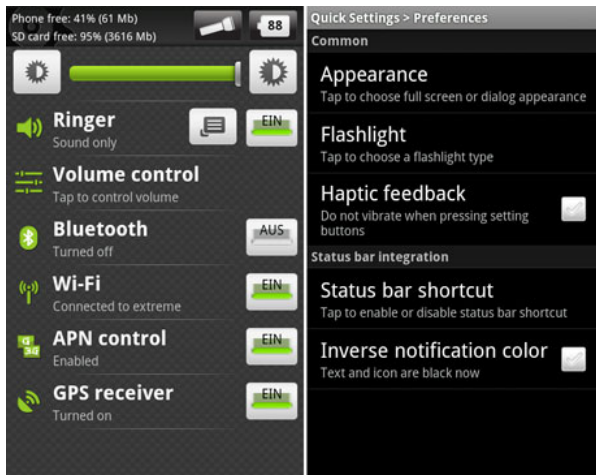


Typen von APPs

OS Specific Applications

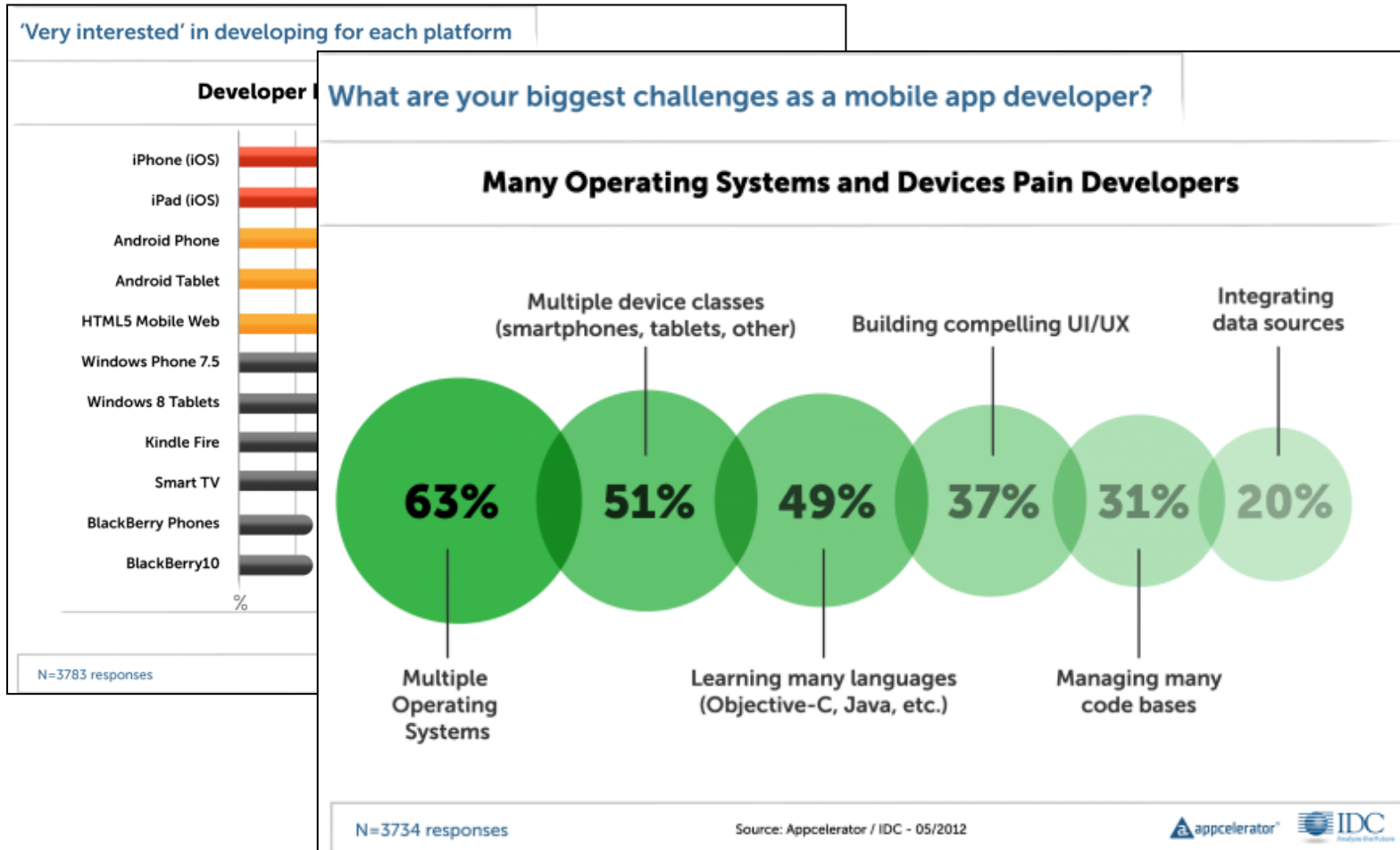


- Bereits im Lieferumfang des Device Herstellers enthalten
- Werden nicht als Download angeboten
- Keine Installation/De-Installation
- Besitzen mehr Rechte als klassische Apps



Typen von APPs

Welcher Weg ist der Richtige?

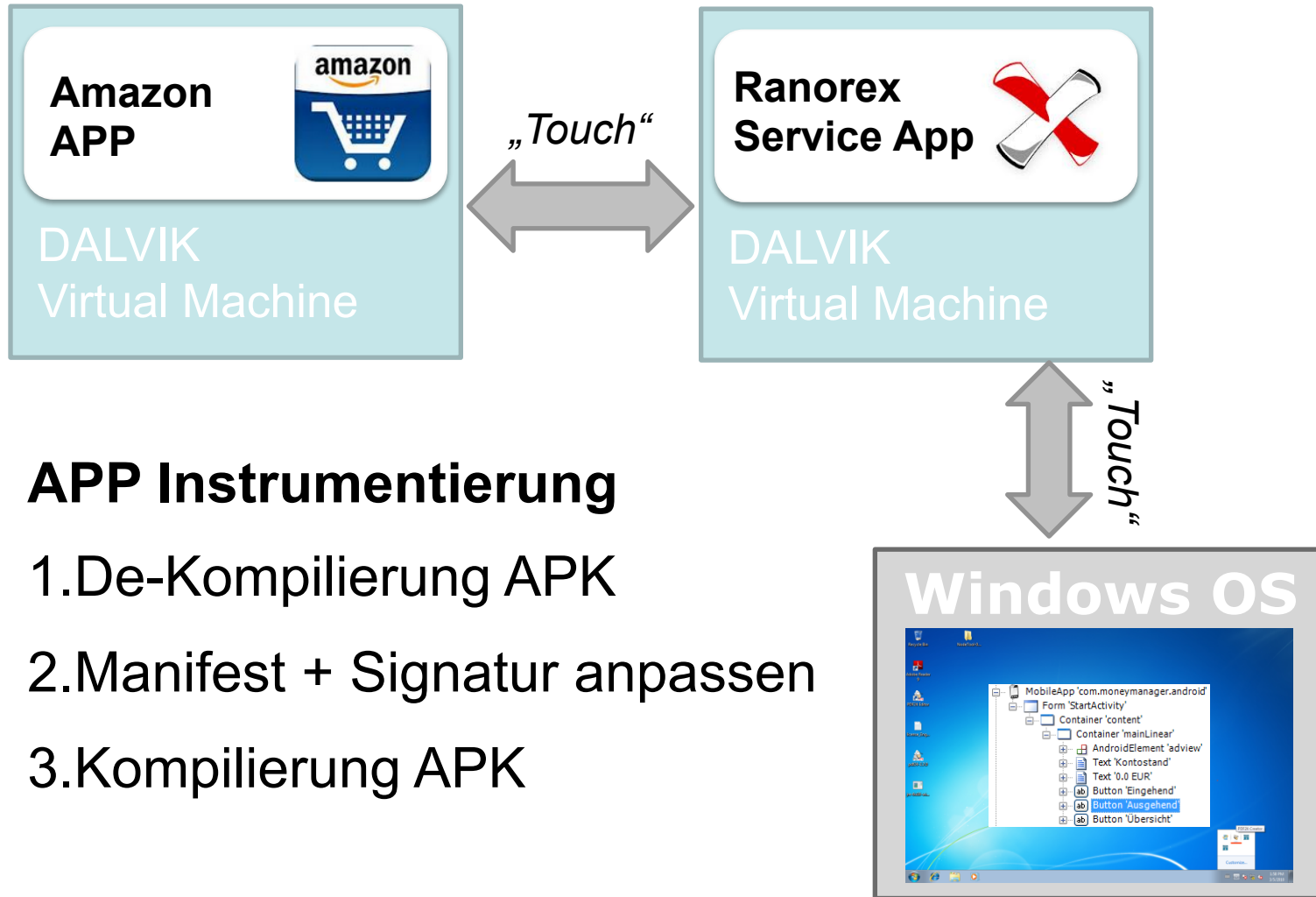


Typen von APPs

Entscheidungsfaktoren

- **Welche Geräte/OSs verwenden ihre Kunden?**
- **User Experience (UX/UI)**
 - Look and Feel
 - Geschwindigkeit
- **Entwicklungs Know-How**
 - Web/iOS/Windows/Java
- **APP Deployment?**
 - Wie erreichen Sie Ihre Kunden?
 - Consumer/Enterprise APP?

LIVE DEMO



APP Instrumentierung

1. De-Kompilierung APK
2. Manifest + Signatur anpassen
3. Kompilierung APK

Mobile (Test) Automatisierung erfordert ...

- ... fachkundiges, technisch ausgebildetes Personal
- ... erhöhte Kommunikation und Zusammenarbeit zwischen Test und Entwicklung („Design for Testability“)
- ... die richtige Verwendung geeigneter Tools
- ... besondere Berücksichtigung folgender allgemein gültiger TA-Regeln:

- **Erhöhte Investition** zu Projektbeginn (POCs, Know-How-Aufbau, Hardware, etc.)
- „**Weniger ist Mehr**“ dafür aber stabil und wiederholbar
- **Wert** und **Aufwand** bestimmen, ob Testfall automatisiert wird
Vorsicht: Möglicher erhöhter Wartungsaufwand



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Why Use Ranorex?
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