全球主流前装车载软件平台展望

Andy Ha, Country Manager, Greater China Automotive

Auto Business Overview

Well established global relationships

Automakers

Tier 1

Vehicles shipped with QNX technology

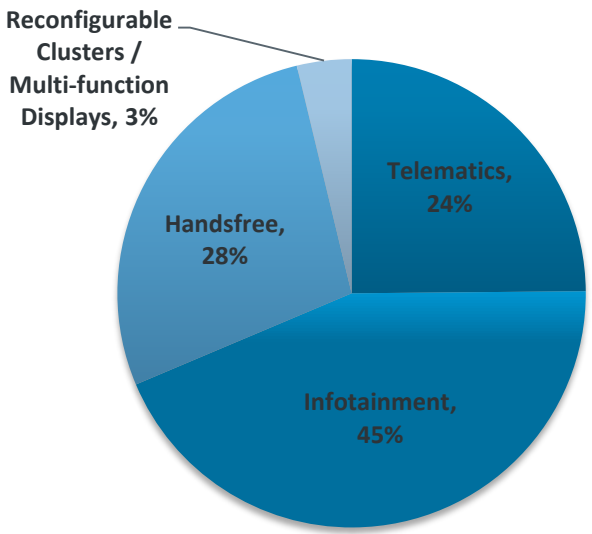
- 9 million worldwide in 2011 (9.2M Modules)
- 11 million worldwide in 2012 (nearly 12M Modules)
- 14 million worldwide in 2013 (> 16M Modules)

40+ global OEMs with QNX-based projects

Automotive customers and sub-segments

Top 10 Auto Customers
Harman International
LG Electronics
Panasonic
Johnson Controls
Delphi
Audi
Technisat Digital GmbH
Visteon Corporation
Robert Bosch
Magnetti Marelli

Top 10 Auto OEMs
General Motors
Honda
BMW
Chrysler / Fiat
VW Group / Audi
Toyota
Nissan
Ford
Hyundai
Mercedes



QNX in Infotainment

QNX in Reconfigurable Clusters

Example: Mercedes-Benz Concept S-Class Coupe

Example : Audi New TT Driver Information Display

Cost reductions via the integrated cockpit

QNX in Telematics / Hands Free

Certification scope

- Runtime components
  - Neutrino kernel: procnto and process manager
  - Libc
- Tool chain
  - As found in SDP 6.5.0
  - GNU C compiler, linker and assembler

ISO 26262 ASIL D

IEC 61508 SIL3


TÜVRheinland®

ZERTIFIKAT
CERTIFICATE

No.: 968/EZ 653.00/14

Industry-best product lifespan

- QNX doesn't force software migration
  - Your product choices are stable for years to come
- Unparalleled product support
  - Released products supported indefinitely
  - QNX RTOS v4
    - First released in 1991
    - Still used by customers
    - New releases even 18 years later (Nov 2009)
  - QNX RTOS v2
    - First released in 1982
    - Still used by customers
    - Customers receiving technical support 28 years later

Industry-leading reliability

- QNX Software Systems has been serving customers for over 30 years
- Long standing history of multi-year uptimes
  - 80,000 industrial systems deployed trouble-free for more than 10 years
- QNX occasionally gets support calls on systems running continuously for decades
  - “Museum piece” hardware has failed
  - We provide creative solutions to help customers replace obsolete components

Auto Technology Trends and Strategy

Agenda – what's next in automotive?

- Changing Supply Chain
- Changing role of devices in the vehicle
- Separation of HME (Human Machine Experience) and app environment
- Cost reduction via integrated cockpit (Cluster with Infotainment)
- Safety, security, updates, and lifecycle management
- Technology to address regulation
- Acoustic trends

Automotive supply chain

QNX, Microsoft, Nuance, Elektrobit, Nokia, Vector, Rightware, Texas Instruments, Freescale, Qualcomm, Apple, Telenav, Nokia …

Value shifts in the automotive supply chain

OEMs

- Taking back control of their in-vehicle systems
- Software increasingly viewed as a differentiator
- Changing models (Audi / Tesla)
- Investigating Software Tier 1 model

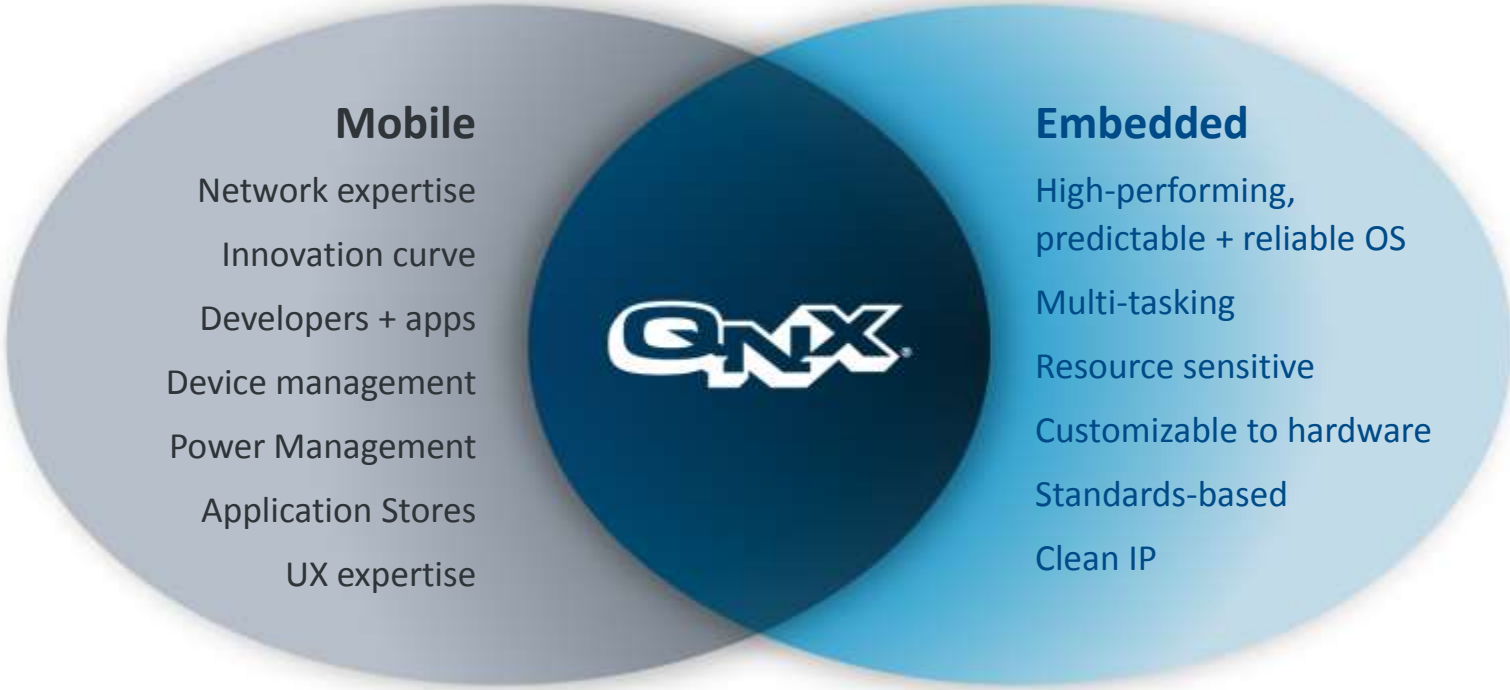
Tier 1s

- Historically had control over systems; receding as OEMs reduce dependency on suppliers
- Trying to maintain and increase value proposition
- Under major pressure to reduce costs

New Entrants

- Smart phones with competing brands
- Apple & Google
- Big data players
- Mobile Operators

QNX: embedded heritage at the speed of mobility



QNX CAR design principles

Speed customer's time-to-market

- Leverage mobile app development
- Leverage consumer electronics technology speed
- Integrate best of breed automotive technologies
  - voice recognition, navigation, connectivity
- Solve development and integration issues
  - code reuse, boot times, memory footprint

Provide customer with flexibility

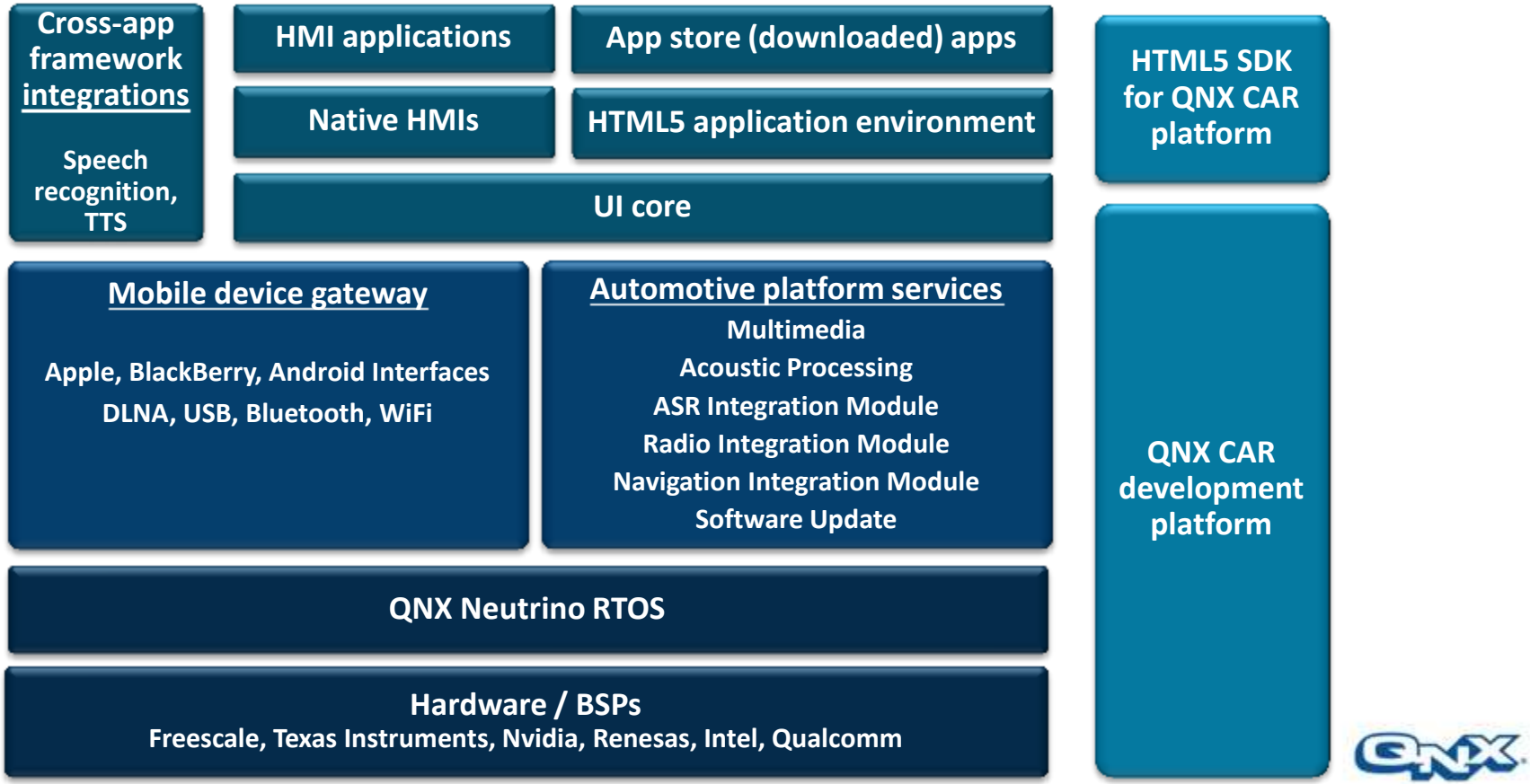
- Support multiple simultaneous HMI frameworks
  - cleanly separated UI and service layers
- Fully abstracted component subsystems
  - substitute for preferences or regional needs

30

Improve time to market

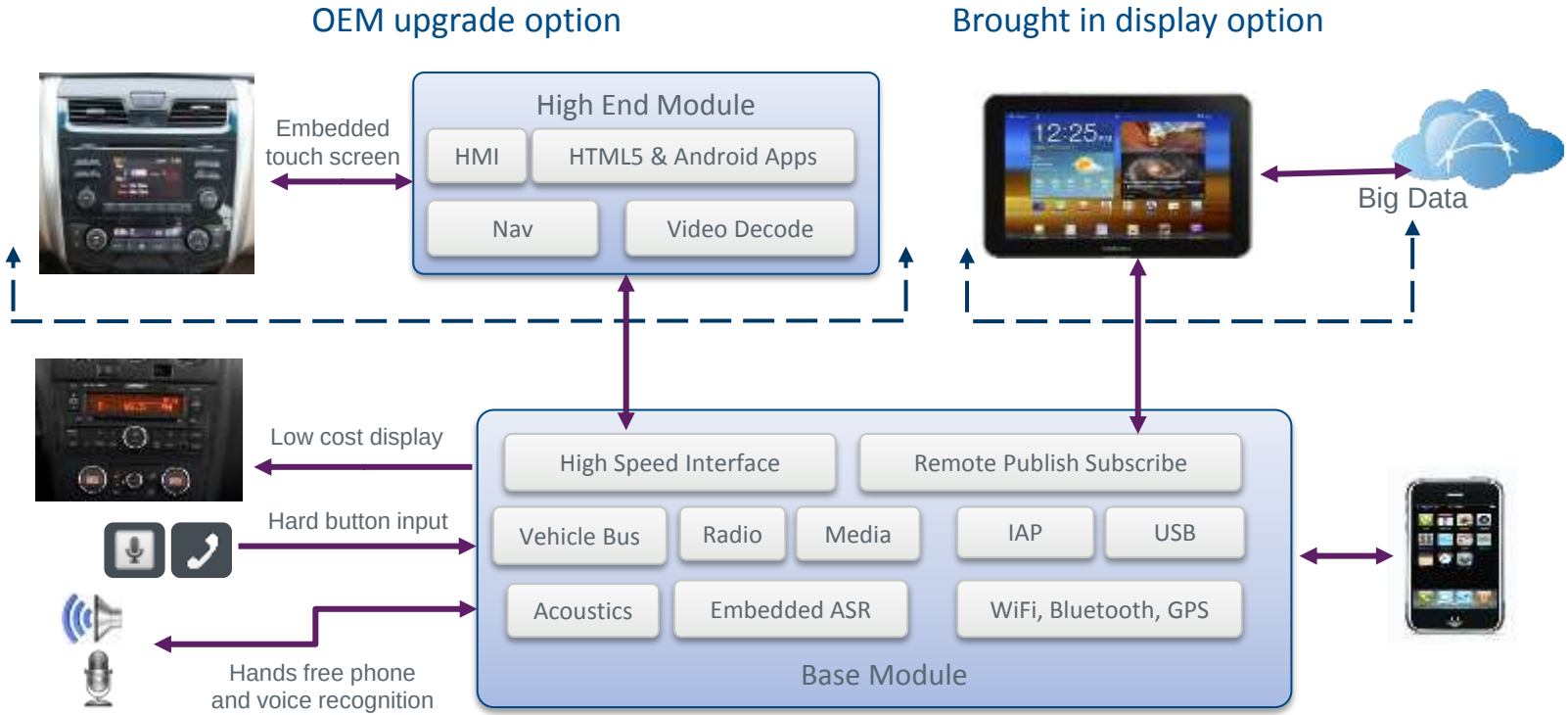
- QNX helped an automotive customer cut “award to SOP” time from 3 years to 13 months
- QNX CAR 2 is designed to further drive down development time while increasing functionality
  - Complete infotainment software ecosystem is already pre-integrated
  - Modularly architected around software reuse and user interface reskinning

QNX CAR application platform block diagram

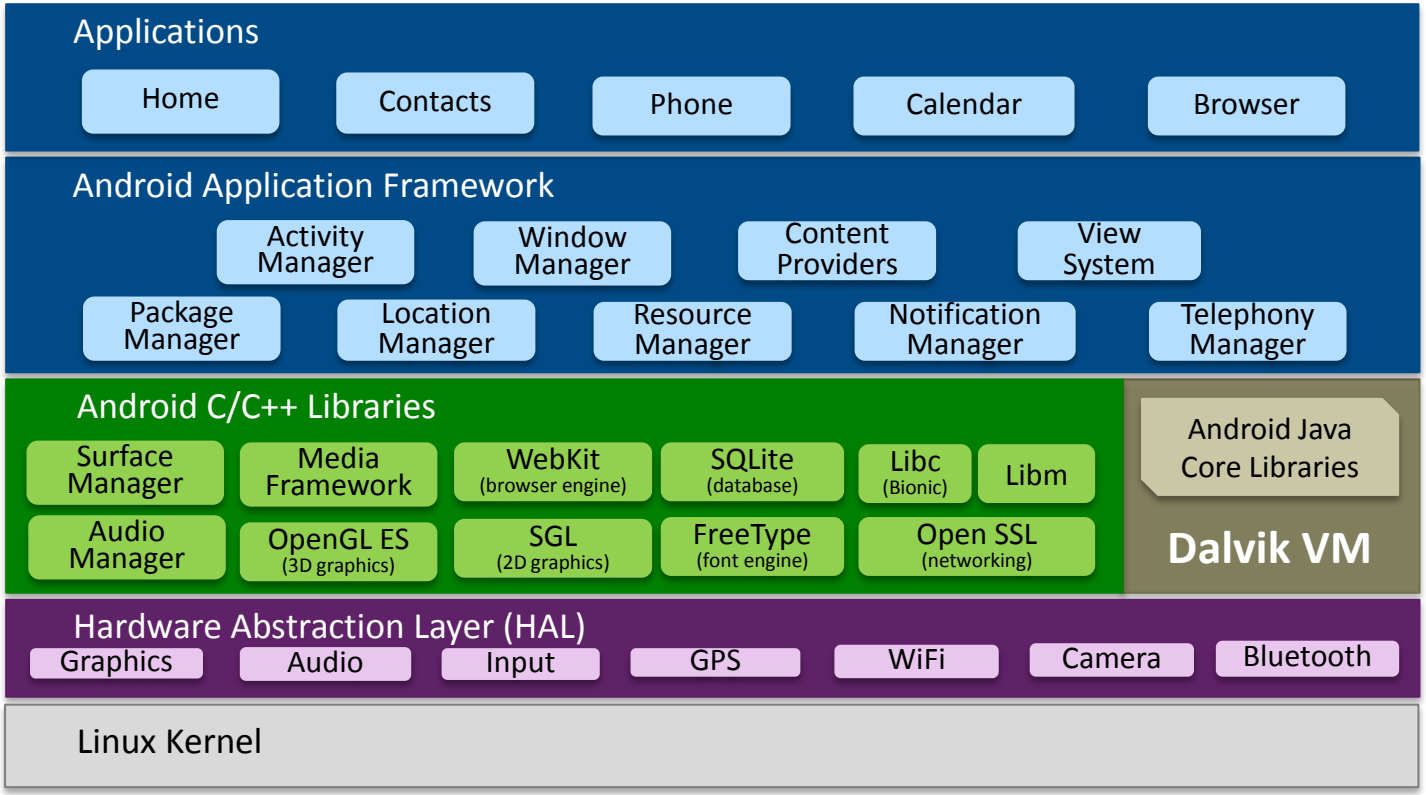


Changing role of devices in the vehicle

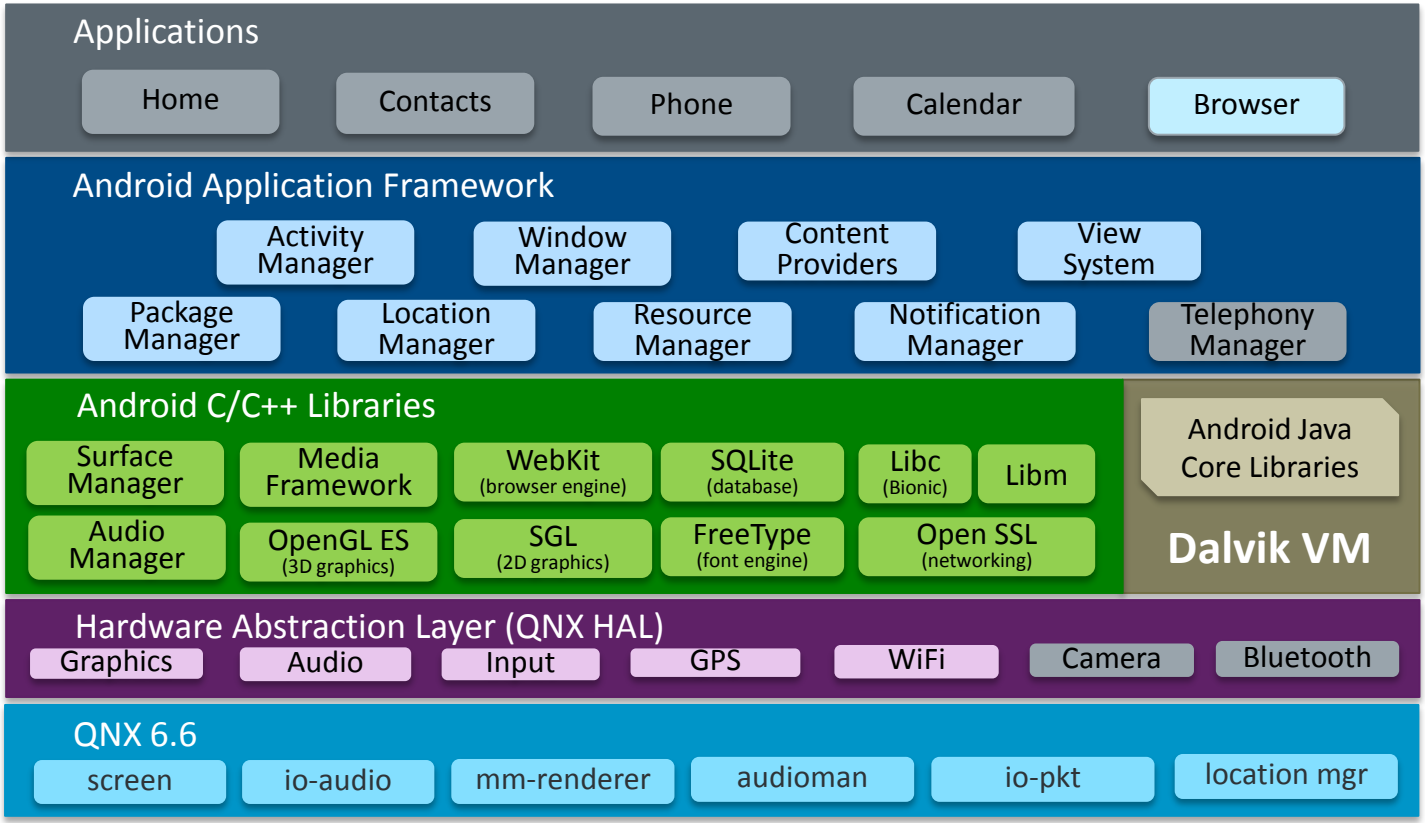
QNX CAR 2.2 – distributed platform configurations



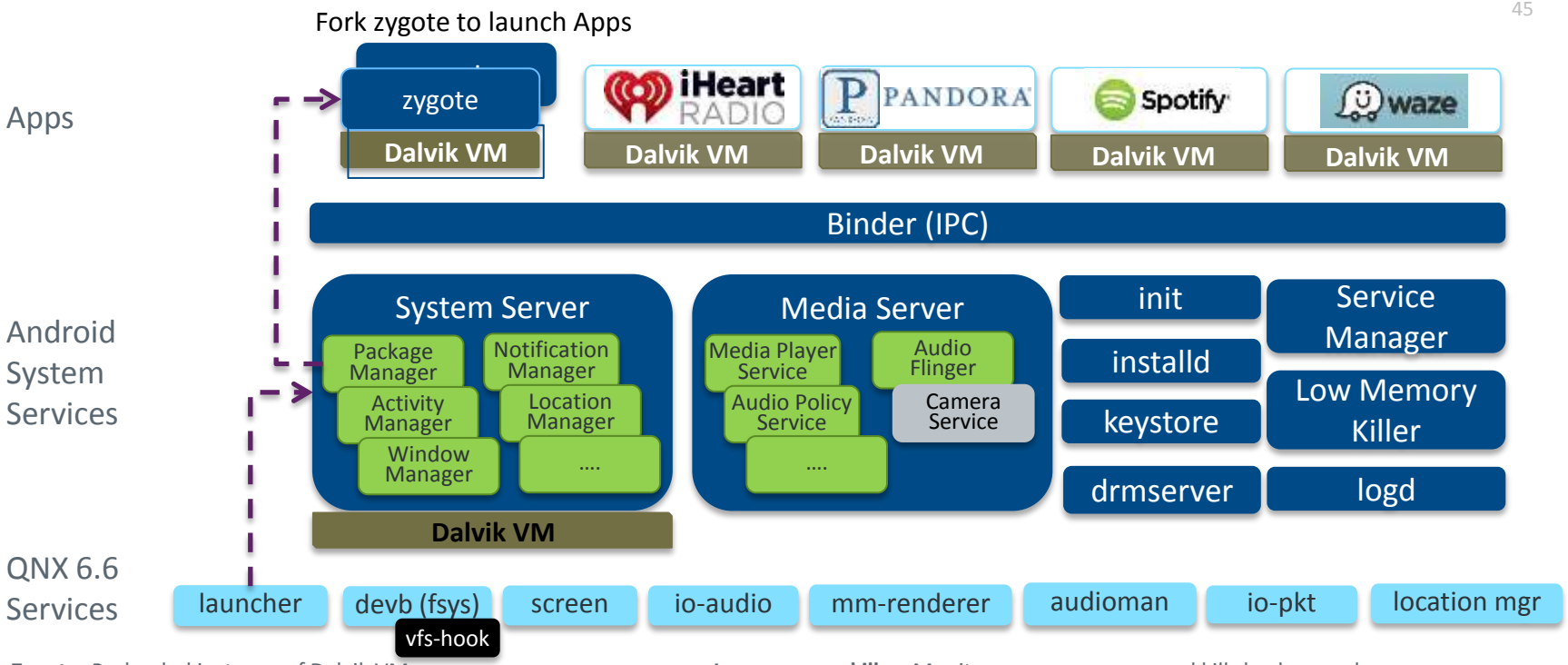
The “Standard” Android OS Architecture



Android OS on QNX



Android Process Model on QNX



- **Zygote:** Preloaded instance of Dalvik VM
- **Binder:** Service for interprocess communication
- **System server:** Implements Android application framework
- **Media server:** Media and audio playback, camera
- **Service manager:** Application interface to system/media server
- **Low memory killer:** Monitors memory usage and kills background apps
- **init:** Root Android process, restarts failed components
- **installd:** Converts app Java code to Dalvik DEX bytecode
- **Keystore:** SSL key storage
- **drmserver:** Media DRM

Thank You

Andy Ha
Andy@qnxsoft.cn