Linux in Automotive – From Open Source to Products

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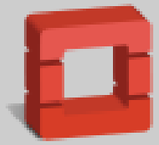
The New Reality

facebook



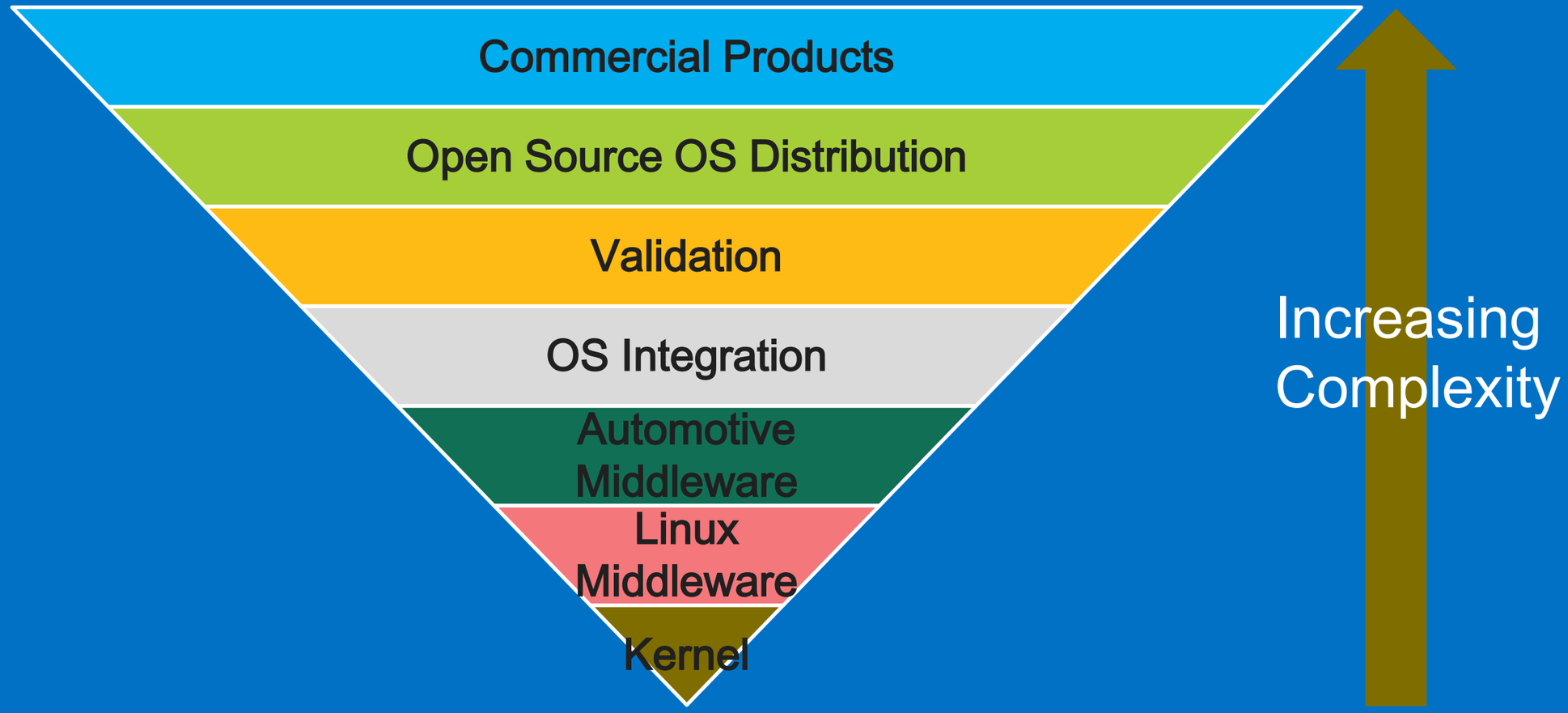
openstack
CLOUD SOFTWARE

redhat

chrome

WIND RIVER

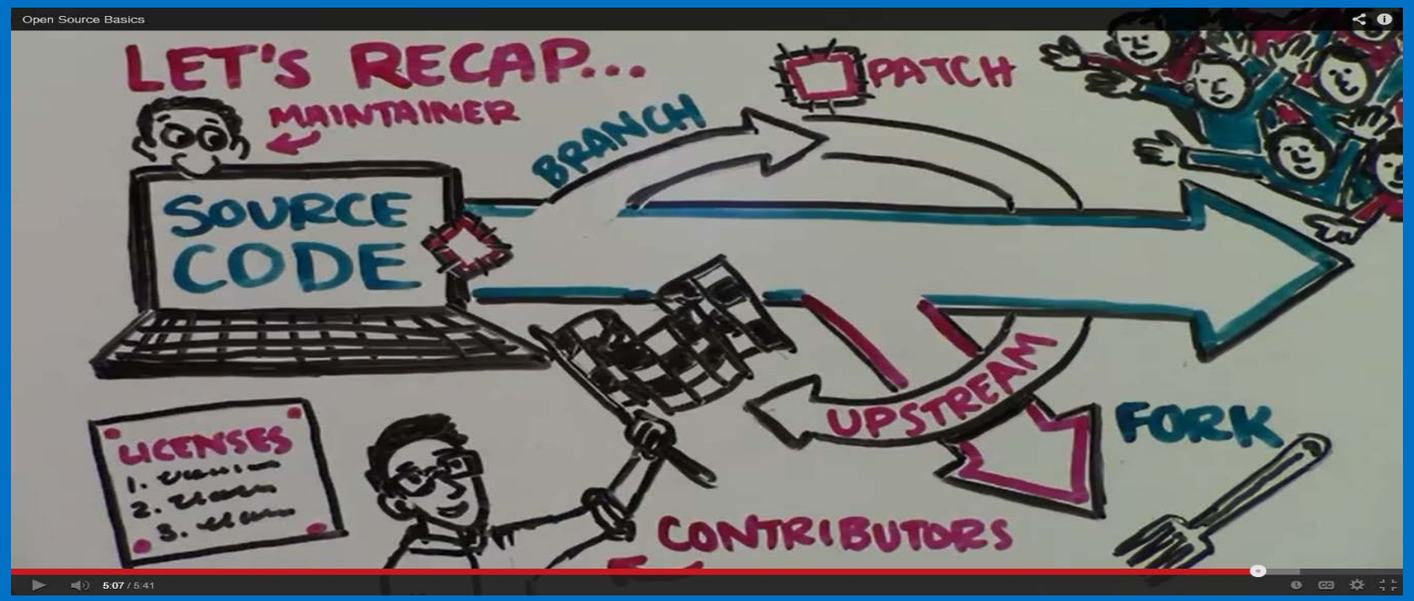
Upstream to Products



1. *Thousands of person years of community investment*
2. *Upstream Projects focus on solving common problems*
3. *Distributions become increasingly robust with usage*
4. *Commercial Products focus on differentiation, proprietary value-add and long term support*

Upstream First. Possibilities are endless …

if rules are followed



Check out:
https://www.youtube.com/watch?v=Tyd0FO0tko8

Automotive Upstream Projects

GENIVI Member Projects

- Audio Manager
- Diagnostic Log n Trace
- Layer Mgmt
- Navigation
- …

Tizen IVI

- Crosswalk Webruntime
- Message Broker
- Policy Mgr - Mutphy
- ….

Unique to Open Source

More upstream code = Increasing reuse = More differentiation by OEMs and Tier1s

TIZEN

ABOUT BLOGS COMMUNITY EVENTS

The OS of Everything

Tizen is the open-source operating system for all device areas.

Mobile

Wearable

In-Vehicle Infotainment

TV

LEARN MORE ABOUT TIZEN

Tizen Platform Benefits

Web performance comparable to native

– Web App with smooth and good response

– Web based 3D App with fast and fancy graphics

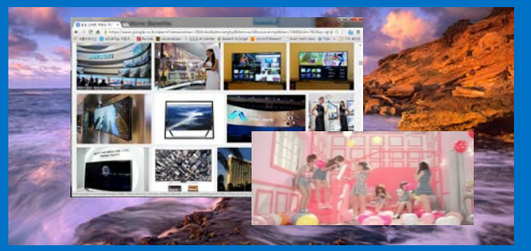
2D (Crazy chicken)

WebGL 3D (helloracer.com)

Powerful multi-tasking

– Support multi-tasking with multi-window

– Easy task management

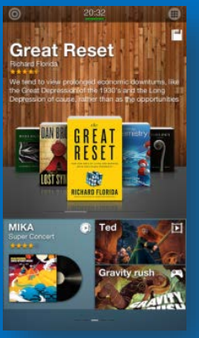


Multi-Window

Flexible UX customization

– Various home screen layout setting for user’s taste

Default

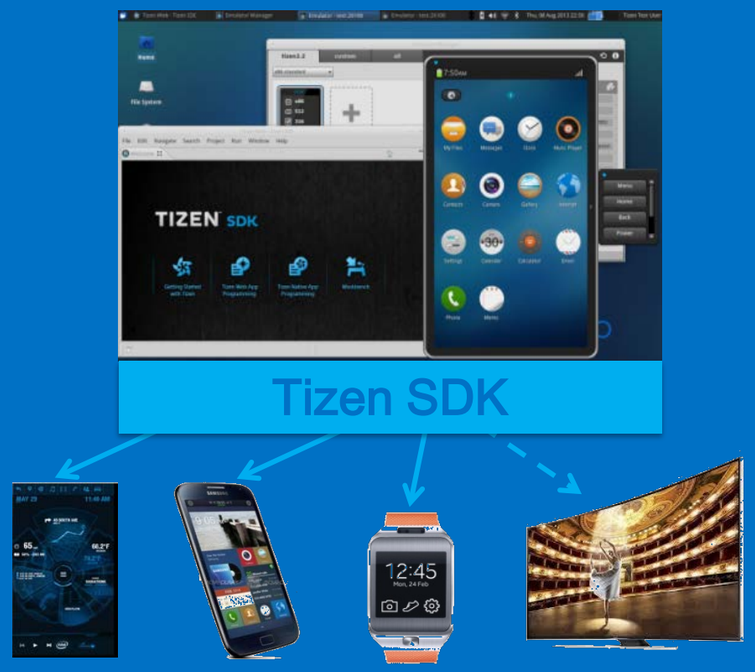


Entertainment

Social

Tizen in Automotive (Tizen IVI)

Tizen-IVI is the reference platform for AGL and has attained G ENIVI 5.0 compliance



Unified Developer Experience f or Multiple profiles

Enabling Automotive Usages and Features		
Fast Boot	Multi User	Multi Display
BT Handsfree	Multiple Connectivity options	Web Apps w/HTML5
IVI Specific SDK	Mobile Device Connectivity	Multiple Toolkits
Policy Mgmt	Compliance (GENIVI, AGL)	STT/TTS
Vehicle APIs	Multiple Build Systems	Security with Smack

Key Tizen IVI Features

Build faster, more secure Tizen applications for a wider range of hardware devices

HTML5/Web/Crosswalk

- Use new hardware capabilities immediately
- Consistent run time between Tizen and Android
- Supported by leading cross-platform tools/frameworks

64-bit Linux Kernel

- Expanded hardware compatibility and capability
- Address additional memory
- Support new services like Ultra HD Content

Security

- Create enterprise-ready apps and solutions for mobile, wearable and other smart devices

Wayland

- Simplified graphics system offering more flexibility and better performance

Tizen 3.0 Common Source/build

Common

- 3D UI
- Multi-User
- 64-bit
- KDBUS
- Buxton
- Blink/Crosswalk
- Wayland
- SMACK
- . . .

Tizen Base OS

\+

Profiles

Mobile

Native | NFC

Enlightment | Security Container | Telephony

Automotive

Weston | AMB

GENIVI Layer Manager | Murphy Audio Manager

TV

Watch

Refrigerator

Devices

=

=

=

=

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Technology Innovation for the Auto Industry

User Experience

Commercial Services

Open Source Reference

Intel® In-Vehicle Solutions & The Road Ahead

HARDWARE AND SOFTWARE FOR IN-VEHICLE INFOTAINMENT (IVI)

Intel® In-Vehicle Solutions Compute Modules
(Plus board support package)

Intel® In-Vehicle Solutions Software Foundation
(Comprehensive middleware)

Essential Features

Basic | Connectivity | Multimedia

Entertainment Package

Advanced | Premium

Intel® In-Vehicle Solutions Platform
(Application-ready IVI platform)

COCKPIT CONSOLIDATION

Consolidation of usages: Head unit, instrumentation cluster, ADAS, RSE

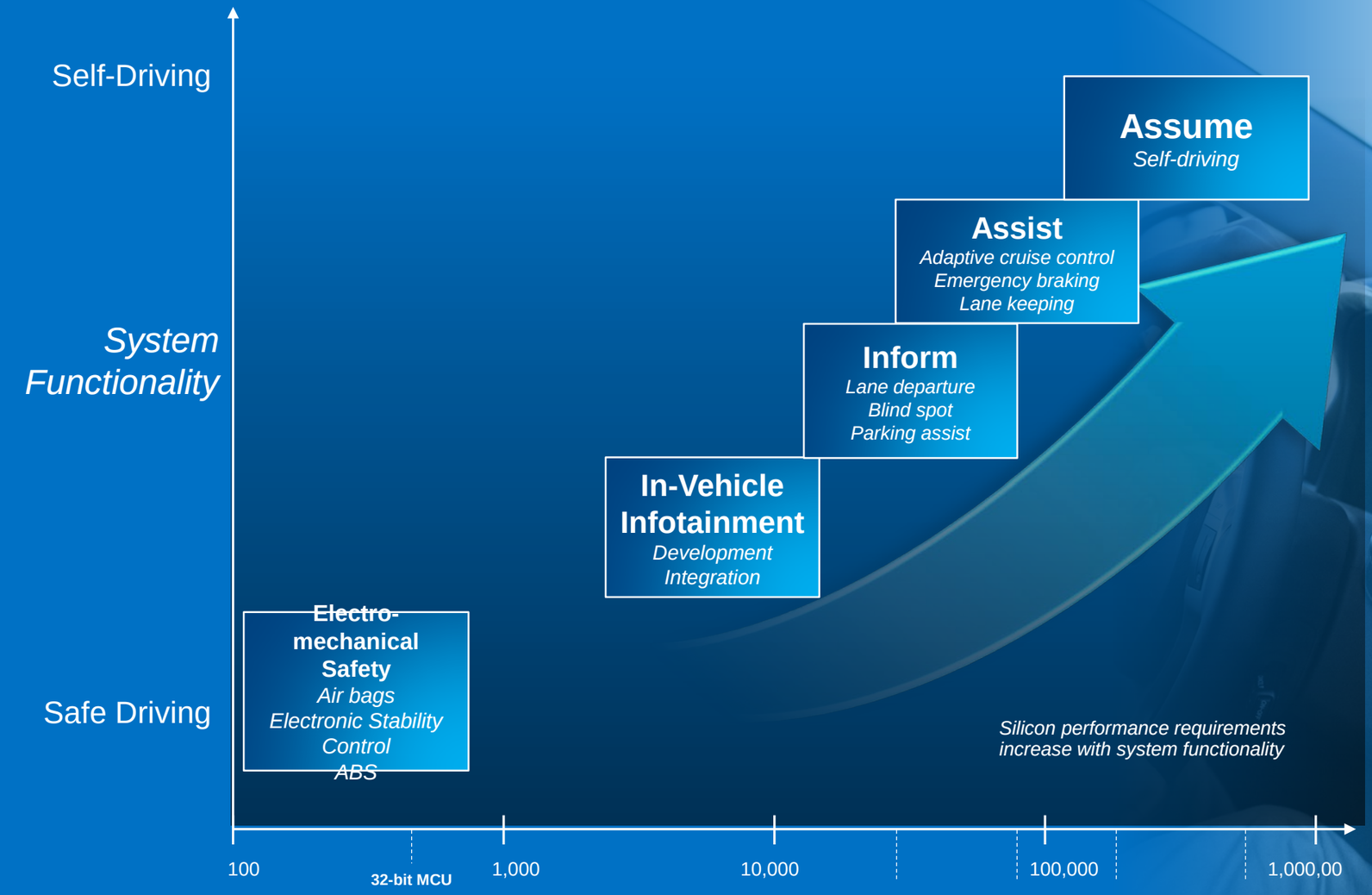
FUTURE ADVANCED DRIVING PRODUCTS

Advanced driving technologies, autonomous driving

In-Vehicle Technology Evolution

It starts with convenience and ends with safety

The Road to Autonomous Driving



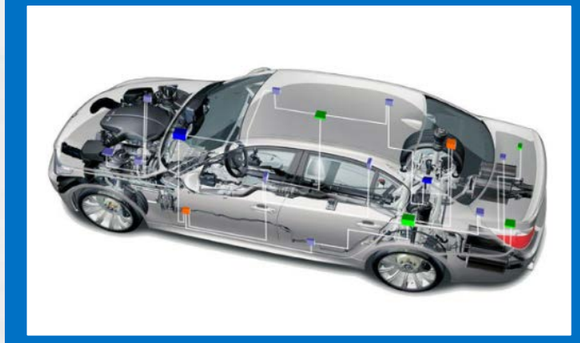
Numbers are for illustrative purposes only and do not represent actual measurements

Driving the Future

Automotive Research from Intel

Personal Vehicle Experience

Secure My Connected Car



Anthropology to User Experience to Underlying Technologies

intel
Look Inside.™