GDP Next

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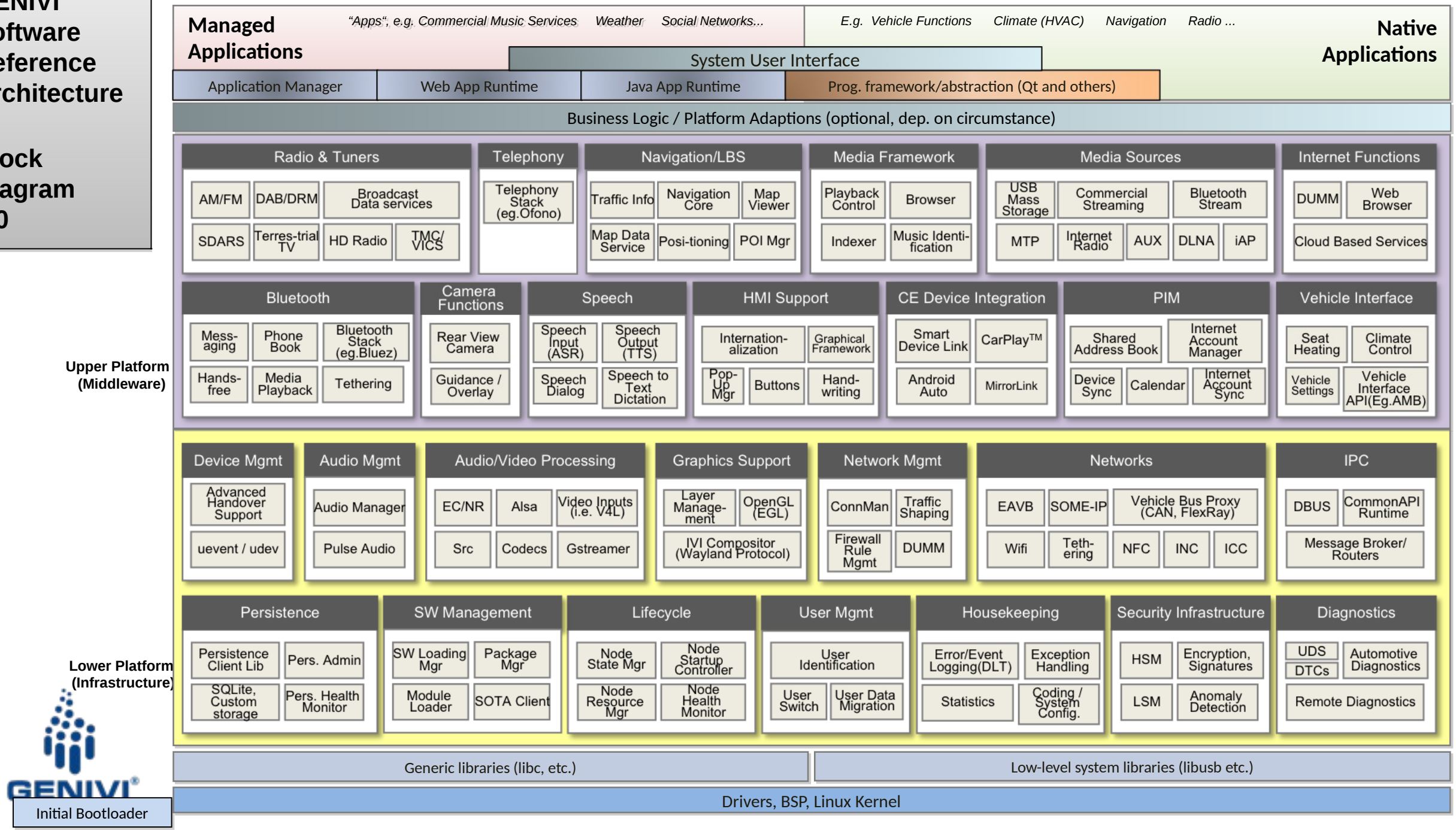
GDP principles

- Right combination of long-term architecture thinking and **standard** open-source solutions
- APIs formally described in Franca IDL

  -> Enables to **flexibly** generate bindings to **fast changing** technologies

GENIVI Software Reference Architecture

Block Diagram 2.0



GDP – Next

Increase leverage of GENIVI-unique features, while improving code reuse

GDP – Next

A system for engineers looking for a development platform for fast innovation

GDP – Next

1. Leverage unique features
2. Continue investigation into model-based / formal system definition and code generation
3. Reuse fitting AGL code
4. Improve standard-Linux technology adoption

GENIVI – AGL reuse

- Some things don’t fit. Some do.
- Alignment of BSP and hardware layers to close perceived hardware support gap (std. Yocto BSP)
- Initiate shared functional Yocto layer
- Reuse of appropriately fitting code/recipes to improve platform
- Strengthen alignment through 3rd party collaborations (W3C, OCF, ...)

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GENIVI – Standard Linux Reuse

- **GDP Master project to use Flatpak**
  – Application packaging and containment

  Good example of increased Standard Linux Reuse

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It’s all about APIs!

- GENIVI principle is formal API description of all Inter-Process Communication using 2 main ways:

  1. Franca IDL for all command-and-control (i.e. RPC)

  2. Signal model for all vehicle and internal signals/events

  (Potential alignment/convergence possible)

  Generative approach produces tremendous flexibility.

Messaging

- Formalize a decoupled IoT-style embedded message router (**WAMP,** MQTT/other) – under discussion
- Web API, inter-node, and device connectivity all in one*?
- Bridges (= translate GENIVI API descriptions to/from any other desired technology, for example **REST**ful APIs)
- * **SOME-IP** binding remains option for inter-node comms.

GDP - Next

- Everything and Anything is Securely Connected (e.g. RVI)
- Fine grained least-possible-privilege security model for every component (not only apps)
- Enabling Component and System model-based development --> generates security configuration, among other things.

GDP – Next-Next, ideas...

- **GDP Core**
  (compact, headless, cluster, telematics, AD, and more)

- Third generation SOTA/update/code-integrity solution using **content addressable filesystems, dm-verity**, …

GDP – Next-Next, ideas… (2)

- Component and System modeling yields results:
  - Generated full fledged fine-grained security implementation?
  - Enable experiments in totally new system approaches
    - Full function deployment transparency across networks
    - Massive Virtualization/containerization (**CoreOS(R)** or similar).
    - Anomaly detection systems on component level

