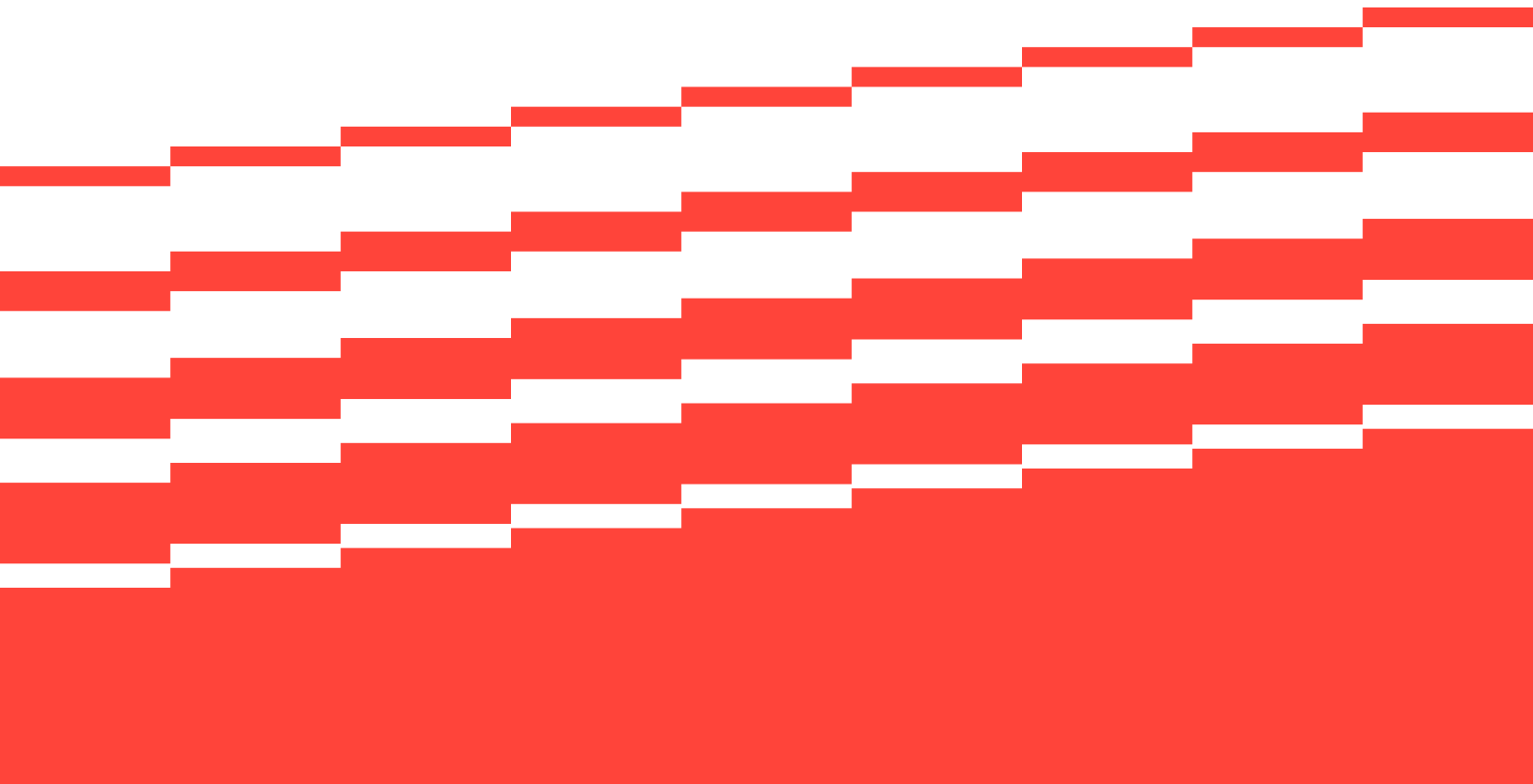
QNX

Solution Brief

QNX Cabin

The Pressure Is on For Digital Cockpit Developers



QNX Cabin

QNX® Cabin is a pre-integrated digital cockpit software reference implementation that provides a development framework for designing digital cockpit systems with a reduced dependence on specific production hardware. By increasing software portability and supporting cloud-first development, QNX Cabin helps reduce development costs and accelerates time-to-market.

The Pressure Is on for Digital Cockpit Developers

OEMs must deliver seamless, connected in-cabin experiences that meet growing customer expectations. QNX Cabin delivers a pre-integrated software solution that simplifies the development of digital cockpit features such as instrument clusters, audio, and driver information displays, ensuring a smooth, cohesive end-user experience while reducing development complexity.

Digital Cockpit Development Challenges. Solved.

Build More Features with Reduced Cycle Times

Digital cockpits are getting more complex, with an expectation for the integration of multiple features requiring the cohesive blending of signals, screens, sounds, and sensors—all of which must be accomplished in an ever-shorter window as time-to-market demands dictate reduced design cycles. QNX Cabin streamlines building these complex systems by clearly separating software development from hardware. This means your teams can innovate faster, developing and testing new features quickly without dependence on a specific hardware platform.

Jumpstart Development Even Before SoC Selection

In many cases, the development of the digital cockpit in-cabin experience starts before the vehicle central System-on-a-Chip (SoC) has been chosen or made widely available. By using QNX Cabin's cloud-first development environment and binary parity with leading SoCs, you can begin your design right away and move to the chosen SoC later.

Reduce the Impact of OS Churn on Development Effort

Frequently, a digital cockpit relies on the use of guest operating systems such as Linux and Android. Frequently, custom versions of these OSs are coded to work directly with SoC processing. But as soon as the guest OS is updated, coding effort must be spent to correspondingly update the software stack. QNX Cabin utilizes VirtIO, an industry standard abstraction layer that prevents OS churn from creating non-value-added work for your development team.

A Safe and Secure Foundation to Accelerate Digital Cockpit Development

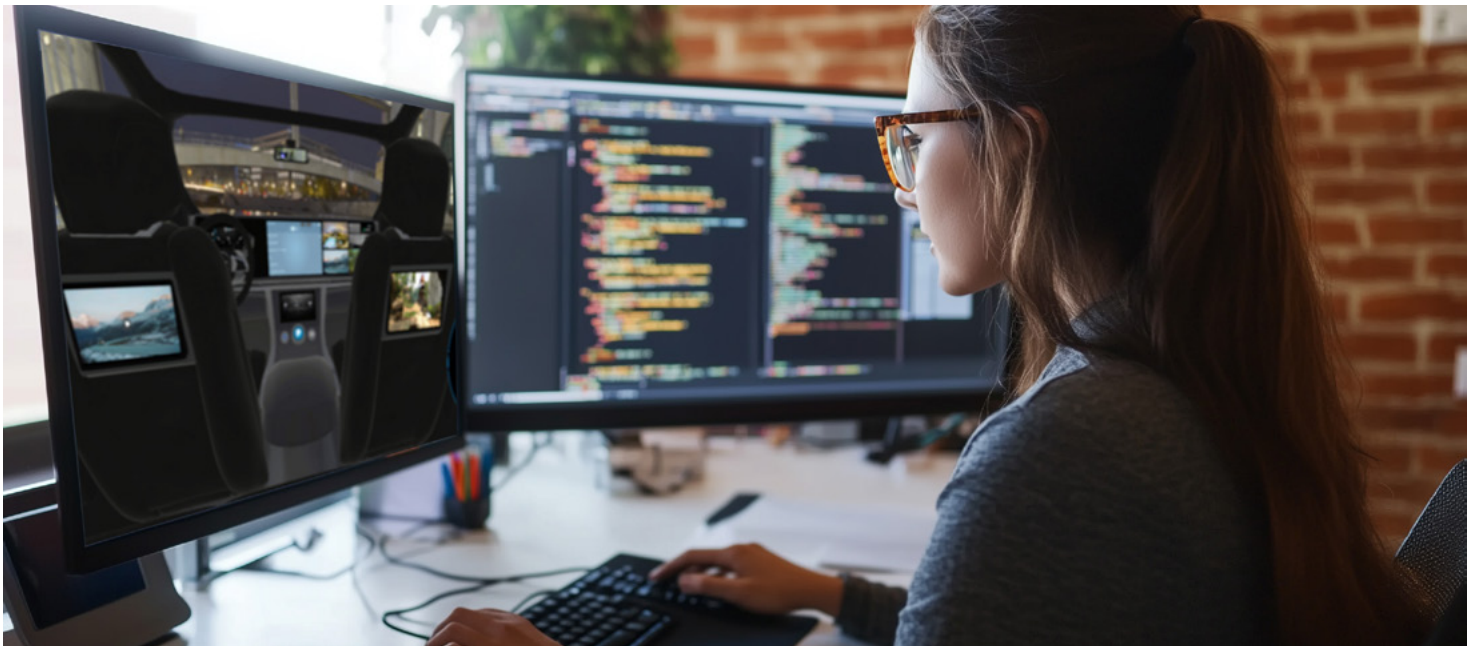
While OEMs aim to take greater control of their vehicle software, they recognize the need for experienced allied software providers to deliver proven, safety-certified software for non-differentiating components. QNX Cabin is built on ISO 26262 ASIL D-certified software ensuring safety, security, and reliability in mixed-criticality systems. This allows OEMs to concentrate on delivering consumer-facing features that define their brand and enhance the driving experience.

Virtualizing the Digital Cockpit to Reduce Complexity

QNX Cabin addresses the challenge of developing in mixed-criticality environments by enabling mission-critical features to run on the certified QNX® Safe Host, while allowing less critical features to operate on guest OSs like Android Automotive and Linux. QNX Cabin utilizes the industry standard VirtIO abstraction layer to allow data to flow to and from the guest seamlessly, decoupling them from hardware.

Empowering Automotive Development Teams to Innovate

QNX Cabin offers a cloud-first approach that decouples software under development from the target hardware. This means dispersed development teams can collaborate on projects using cloud instances of the QNX Cabin software stack that offer binary parity, which provides confidence that the code will work as intended on the target SoC. QNX Cabin empowers developers to seamlessly integrate Linux and Android Automotive operating systems alongside safety-centric QNX®-driven applications. The solution's pre-integration and effortless transition between cloud-based and SoC-based targets mean development teams can create innovative differentiating features rather than spending their time integrating the many complex digital cockpit components.



What Our Customers Are Saying

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With our virtual cockpit, we’re revolutionizing not just our approach, but also that of our suppliers and partners in the industry. Essentially, we’re able to get closer to our customers’ needs through this technology with faster development cycles, faster feedback loops, and quicker delivery of the technology they use and love. It’s a leap towards customer-first innovation and efficiency in the automotive world.

Chief Software Officer, Stellantis.

Software virtualization and abstraction in the cloud is vital to accelerating development and maintaining feature delivery on pace with consumer demand.

Senior Executive, Auto and Manufacturing, AWS.

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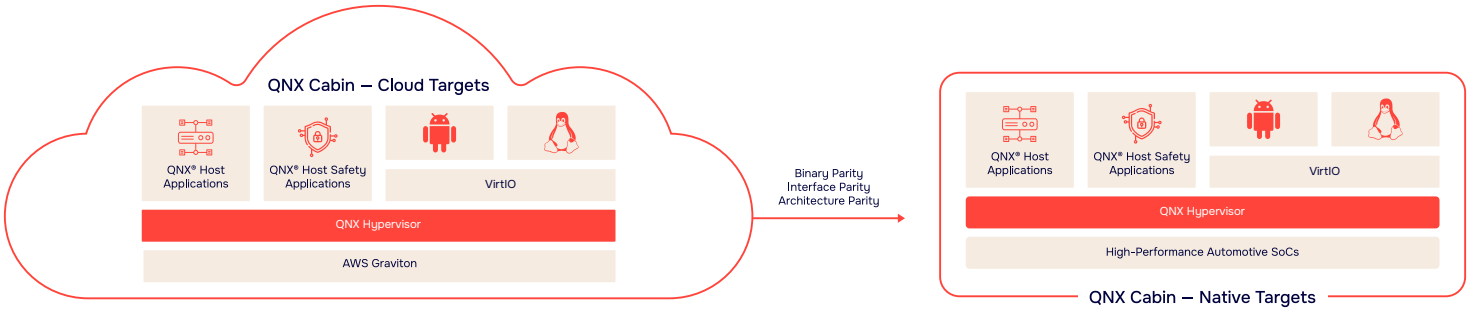

QNX® Cabin for Cloud and QNX® Cabin for SoC are similar platforms, but are aimed at different development targets. This approach means you can start with cloud-based development, then you can move to one of several automotive SoC for further testing and deployment in production.

QNX Cabin at a Glance

Key Components

- QNX Cabin for Cloud – Digital Cockpit reference integration for cloud environments.
- QNX Cabin for SoC – Digital Cockpit reference integration for target platforms.
- Linux and Android Automotive VM integration package.
- QNX® Hypervisor - Consolidate multiple operating systems on a single embedded SoC.
- QNX® Hypervisor for Safety – Consolidate multiple operating systems with different safety requirements on a single SoC.
- QNX® Sound - The complete digital audio platform for software-defined vehicles.
- Cloud Virtual Devices – Technology that enables graphics, audio and more in the cloud.

Cloud-First Advantages

High Availability

- Leverage cloud resources to launch QNX® cloud virtual targets as needed.
- Reduce dependency on target hardware and/or corporate infrastructure.

Early Testing

- Shift-Left' software development, debug and de-risk early on.
- Use native QNX® RTOS/Hypervisor-based cloud virtual targets with binary parity.
- Increase testing performance by eliminating emulation overhead.

Support CI/CD Systems

- Integrate into CI/CD pipelines to automate workflows.
- Provision QNX cloud virtual target as automated test environments.
- Perform orchestrated unit and integration testing.

Rapid Prototyping

- Develop and test software prior to hardware commitment.
- Obtain quick feedback on prototyped software on various target configurations.

Collaboration

- Create a baseline golden image(s) quickly to accelerate development.
- Connect to a QNX cloud virtual target from anywhere to help debug.
- Easily share QNX cloud target environments for collaboration across distributed teams.

Related Products

QNX Hypervisor

Consolidate diverse embedded systems with different reliability and security requirements onto a single SoC.

Learn more →

https://blackberry.qnx.com/en/products/foundation-software/qnx-hypervisor

QNX® OS for Safety

Certified to IEC 61508 SIL 3, IEC 62403 Class C , ISO 26262 ASIL D, EN 50657 SIL 4, and EN 50128 SIL 4.

Learn more →

https://blackberry.qnx.com/en/products/safety-certified/qnx-os-for-safety

QNX Hypervisor for Safety

Certified to ISO 26262 ASIL D, IEC 61508 SIL 3, and IEC 62403 Class C.

Learn more →

https://blackberry.qnx.com/en/products/safety-certified/qnx-hypervisor-for-safety

QNX Sound

A holistic software environment that manages the entire vehicle soundscape.

Learn more →

https://blackberry.qnx.com/en/products/automotive/qnx-sound

QNX® Software Development Platform 8.0

Our next-generation development platform for mission-critical, high-performance embedded systems.

Learn more →

https://blackberry.qnx.com/en/products/foundation-software/qnx-software-development-platform

QNX Cabin Test Drive

The best way to determine whether QNX Cabin is the right solution for your digital cockpit development needs is to try it for yourself. Our innovative and full-featured QNX Cabin Test Drive program will enable you to access evaluation licenses for the products needed to build a functional digital cockpit, together with access to a QNX-provided cloud instance within AWS, and training from our expert staff of field application engineers. You will be able to make use of all the functionality of QNX Cabin on your own schedule and with your own staff – the ultimate test of how QNX Cabin will improve your development efficiency, scalability, and time to market.

During the Test Drive program, our experts will work with you toward realizing a cloud-first, hardware-portable digital cockpit development environment, ensuring that you meet increasingly difficult cycle time goals and in-cabin experience specifications.

We're excited to bring our 44 years of experience and technology in more than 255 million vehicles to your digital cockpit development program!

Contact us at **qnx.com/en/company/contact** →

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QNX

About QNX

QNX, a division of BlackBerry Limited, enhances the human experience and amplifies technology-driven industries, providing a trusted foundation for software-defined businesses to thrive. The business leads the way in delivering safe and secure operating systems, hypervisors, middleware, solutions, and development tools, along with support and services delivered by trusted embedded software experts. QNX® technology has been deployed in the world's most critical embedded systems, including more than 255 million vehicles on the road today. QNX® software is trusted across industries including automotive, medical devices, industrial controls, robotics, commercial vehicles, rail, and aerospace and defense. Founded in 1980, QNX is headquartered in Ottawa, Canada.

Learn more at qnx.com →