Solution Application

Advancing Augmented Reality

Casa Systems empowers service providers to help deliver a world of new experiences

The term augmented reality (AR) has been around for nearly 30 years. Coined in 1990 by a Boeing engineer, it has gone through many versions and permutations since its introduction.

AR remains outside the experience of many industries. Those that have implemented AR solutions understand that it can enrich the real world by overlaying 3D models or video, in real-time, on the camera view of your smartphone, tablet, PC, or connected glasses. It works like this: apps are written in special 3D programs that allow the developer to tie animation or contextual digital information in the computer program to an AR "marker" in the real world.

New generations of video games and cell phones are helping accelerate the advancement of AR. At the same time, the technology is also being actively explored by a growing number of other industries, from healthcare and public safety, to tourism, retail, and gas and oil.

The Challenge for Service Providers

Despite the incredible experiences AR makes possible, it does pose new challenges for service providers. Among them, AR creates and relies on enormous volumes of information that must be accommodated and managed, often outstripping current systems and resources.

Many AR applications also require real-time location intelligence. The popular Pokemon Go game is a perfect example. Augmented shopping experiences have similar demands as only through reliable location intelligence are you likely to find the exact item you are looking for in the mall. In each of these scenarios, intelligence at the edge is critical.

The growing use of AR is putting pressure on service providers to proactively transform their networks, operations, and services to meet these new demands. Mass customization has become necessary as a means for ensuring network assets are used most efficiently and effectively.

Service providers must fundamentally reimagine how networks should work in order to enable simultaneous optimization in multiple dimensions. The networks that serve these new applications will need to be fast, scalable, low latency, flexible, and mobile if they hope to cope with the huge numbers of endpoints and staggering amount of cloud data.

Casa Systems Takes It to the Edge

Casa Systems is perfectly situated to meet the emerging demands of AR. Partnering with Casa Systems, service providers can eliminate the need for costly, high-capacity backhaul; reduce demand on the network core; and push intelligence and contextualization to the edge. The Axyom™ platform, Casa Systems' ultra broadband edge solution, is designed to foster network densification and mobile edge computing.

The Axyom™ Ultra-Broadband Edge Platform

The Axyom Ultra-Broadband Edge Platform is a virtualized, 5G-ready, multi-access solution for 3G/4G and service provider–managed Wi-Fi access. It leverages the modular software approach Casa Systems developed to deliver the cable industry's first and highest density converged access platform.

Engineered to accommodate the multidimensional needs of 5G services, the Axyom platform offers all of the access and core network functions service providers need to enable a variety of ultra-broadband mobile and Wi-Fi services.

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The Axyom platform is uniquely well provisioned for AR. It features a suite of virtual network functions designed to help providers simplify their access networks with a single unified software framework. It also provides security, management tools, and the ability to offer end users the highest quality of experience (QoE).

As noted earlier, to deliver on the promise of AR users must feel like they are operating in a real-time environment. The Axyom platform delivers the sub-millisecond latency required to make that possible. It also supports the need for location-based intelligence, while addressing the necessity of a smooth delivery of the AR content.

Axyom's flexible architecture enables placement of network functions where they make the most sense, including the service edge, the metro edge, or at the enterprise premises. This allows dramatic improvements in performance, protects the network core, and enables the higher QoE AR users increasingly expect.

In addition, simultaneous scaling in multiple dimensions is enabled by Casa Systems' unique approach to network functions virtualization (NFV). Virtualization gives service providers the opportunity to address numerous inefficiencies that exist in legacy network architectures and that can limit AR effectiveness.

The Axyom Ultra-Broadband Edge solution incorporates a state-of-the-art enhanced platform awareness (EPA) design that includes intelligent pipeline processing, performance acceleration, and application of real-time intelligence.

Boosting Performance with Intel

Intel was called upon to help enable customer and partner VNF solutions based on the company's CPU leadership for network solutions and the Intel® Xeon® processor E5-2600 v3 product family. Intel® processors make it possible to transition from using discrete architectures for major workloads (i.e., applications, controls, packets and signal processing) to a single architecture that consolidates the workloads into a more scalable and simplified solution.

Data Plane Development Kit

In addition to processing power, the Axyom platform also takes advantage of the Data Plane Development Kit (DPDK). This powerful set of software libraries removes the most common performance bottlenecks for packet processing software on the Intel® x86 platform. It allows Casa Systems to improve the packet processing performance of the solution by more than 10x, resulting in performance gains that outpace legacy solutions many times over.

Intel® Quick Assist Technology

The Axyom platform benefits as well from utilizing Intel® Quick Assist Technology, which provides security and compression acceleration capabilities to improve performance and efficiency across the service provider network. Developers can use the technology to meet the demands of today's escalating data volumes, especially data bound for encryption and compression. And this can be done while still ensuring applications are fast, secure, and available.

Augmenting Reality with Casa Systems

Augmented reality is not a new idea. But with advancements in technology and growing interest across a range of industries, the technology is gathering interest and momentum, spurring service providers to keep up. Casa Systems and its Axyom Ultra-Broadband Edge Platform provide the tools needed to enable AR and ensure the highest quality experience for its growing legion of users.

Learn more about how Casa Systems and helping enable augmented reality at casa-systems.com/solutions-mobile.

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