Server-on-the-Go (SOTG)

No server room required

A White Paper

Eurocom's Server-on-the-Go

Server capability anytime, anywhere

EUROCOM®

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Table of Contents

Executive Summary

Most of today's servers draw too much power, take a lot of time to set up, consume too much space, and, worst of all, are chained to large, stationary racks, so moving them is a logistical nightmare. Inability to hurdle these obstacles is keeping many enterprises from evolving and developing the services that will keep them competitive tomorrow.

An innovative approach to system solutions is needed if today's businesses expect to cope with their many technology bottlenecks. From energy consumption to site infrastructure to mobility, enterprises are meeting seemingly impassable limitations with conventional server solutions. Mobile Server technology hurdles these obstacles through a combination of energy-optimized design, enterprise-class components, and an innovative form factor. The result is a new class of server, opening new possibilities for previously impractical solutions and applications.

Server-on-the-Go allows for either "on-the-go", "rapid server deployment", "private cloud" or "Ad Hoc" (temporary network setup) when single server capability is required, multiple operating system compatibility is needed and running virtual machines is necessary.

A Server-on-the-Go solution is perfect for network monitoring and auditing, testing new applications, software and database developers, training centers, military personnel, manufacturing, marketing and trade shows, emergency relief, and service organizations. It also allows start-up companies and other organizations to acquire full network capabilities instantly "out-of-the-box".

Eurocom's Mobile Servers come in a laptop form factor, meaning they include an integrated screen, keyboard, and built-in uninterruptable power supply (UPS) with up to 2.5 hours of backup power. Eurocom Mobile Servers are small enough be hand-carried, and there is no server room required.

SOTG is a deployment solution that can help meet performance and stability requirements on-the-go 24/7.

Challenges & Overview

Breakthroughs in server design are creating many ways enterprises can leverage mobility to solve current needs and enable future opportunities. SOTG technology, represented today by Eurocom's P5 Pro SE, tackles many enterprise bottlenecks, including:

Space

SOTG solutions allow considerable multi-server capability in spaces too small for even a single rack, such as an IT van.

Time & Logistics

When you have a temporary set-up, save hours on plugging in/set-up work. The logistical headache of getting a rack moved into an area and setting up a pre-configured server is prevented. Imagine an IT van with laptops/new equipment and cloud back-ups instead of moving a double-wide trailer from a datacenter to a datacenter.

Mobility

Organizations can strengthen existing accounts and expand into untapped areas by taking SOTG machines into environments that can't be addressed with conventional server designs. When everything needs to stay with the team, SOTG offers a solution.

Energy

Many enterprises have hit a brick wall with their site's power consumption. SOTG systems can consume up to 80% less energy than traditional servers and create many new IT options.

Affordable Safety

Traditional server rooms require a massive UPS, cooling, electricians, and a fire code. All businesses need disaster plans, but conventional recovery options can take days and/or require massive spending on redundant sites. SOTG can keep back-up servers standing by and ready to run from anywhere in an emergency.

Ultimately, SOTG creates new opportunities for the entire industry. When servers can go everywhere and run innovative apps with top performance, there are countless opportunities for new sales, a leap in customer service, and the ability to reshape enterprises so they can master tomorrow's unpredictable demands.

Who benefits from SOTG technology?

- Network Managers
- Software and/or database developers
- Training centers
- Military personnel
- Law enforcement
- Forensics
- Emergency relief
- Service organizations

Savings

Energy – up to 80% less consumption than traditional servers

Space – a laptop vs. a tower or rack

Time – initial set-up is under an hour (sometimes as easy as plugging into a thin-client environment) compared to days or months

Manpower – one person can start with SOTG vs. multiple individuals setting up a rack-mounted server

Logistics/Convenience – set-up and travel are easy, especially when compared to a large set-up

Mobile Server Platform

At the heart of SOTG is the Mobile Server, a capable engineering server that can provide the computational back-end for design and low- to mid-range analysis and simulation tasks. While it might be odd to think of a laptop as a server, what really matters is the power of its components.

The Mobile Server is an innovative server-class laptop form factor computer. With an all-in-one design with integrated display, keyboard, and built-in UPS/Battery Pack, Mobile Servers are heavy-duty Intel Xeon-based laptops.

The size of a Mobile Server is a huge asset. You can bring it anywhere and set it up quickly. It has a built-in UPS/Battery Pack so there is no need to worry about the logistics of a huge power draw or plug-in set-up. As well, no electricians are required and the time savings is tremendous.

SOTG is the complementary deployment method for Mobile Servers that adds a fresh set of possibilities on top of existing rackmount server options.

Core Technology

A reliable and integrated solution, SOTG combines integrated circuit design, heavy-duty chassis packaging, customizable power, and the latest thermal and cooling considerations.

The Intel Xeon has an exceptional multi-tasking capability and additional 8 MB Smart Cache for speeding up data and instruction transfers. These systems offer up to 64 GB of memory and up to 12 TB of RAID 0/1/5 storage; enough for many types of deployment scenarios.

Mobile Server Specifications

- High-performance processors: Intel Xeon; scalable; socket based; up to 4 cores/8 treads
- Choice of different form-factors from 15.6” up to 17.3” with different weight parameters to meet variety of mobility requirements
- Up to 64 GB of high-performance DDR4 ECC dual-channel memory
- 64-bit hardware and multiple operating systems support (Microsoft Server 2012R2, Linux, VMware)
- Up to 16TB of storage with up to 6 high-performance Solid State Drives/HDD including NVMe SSDs
- RAID 0/1/5
- High-performance Ethernet LAN on-board
- 102-key desktop-like full-size keyboards with separate numeric keypad
- Internal battery pack/UPS to ensure uninterrupted operation in case of power failure
- Excellent cooling to optimally distribute and vent generated heat and ensure long lifespan
- Heavy-duty mechanical design

Deployment Scenarios

SOTG is useful in a variety of fields with a growing array of possibilities with advancements in technology, such as VR, design, and rendering. The following is a list of deployment areas:

Finance/Accounting

Remove the server from the main location and move it to a safe location efficiently, as needed.

Development Server

Software and Database Developers and Consultants can develop customized applications for their customers.

Application Testing Platform

Prior to production deployment, test new applications outside of the main production servers.

Network Auditing

Ascertain a network’s health as per set-out requirements with SOTG.

Back-up Server

For critical applications, use an SOTG deployment as a back-up or during server migration.

Rapid server deployment

When you need quick access to a server in a simple and cost-effective way, SOTG deployment offers the most rapid server deployment available with a Mobile Server and a Mobile Workstation or laptop setup. Traditional server rooms can take anywhere from a day (a few hours just for the operating system and server roles) to months to set up. A Mobile Server being deployed with SOTG takes under an hour to set up. Here’s some examples:

Disaster Management

Unfortunately, technology fails and the environment can be harsh. Having a disaster management plan is highly recommended.

Security, Military, Police

When crossing borders, keeping confidential information secure is a top priority. Communications centers and command centers may require mobility. Military activities include mapping and GIS, engineering, infrastructure design, product development, training, and combat scenarios in which SOTG deployment provides rapid deployment, confidentiality, and mobility.

Training

Provide full training at a customer's site or set up ad hoc training facilities when you travel.

Turn-key Network Solution

A ready-to-deploy IT solution out-of-the-box.

Portable Server

For industries on the move that require a server, such as construction, infrastructure, oil, and transportation.

SMB Server

When a small- to mid-sized business needs a server up-and-running quickly, SOTG deployment is a great match.

Private Cloud

You can set up a private cloud that ensures scalability and self-service through this proprietary architecture. By using your own Mobile Server solution and deploying SOTG, you have a dedicated and private server for a single organization. A private cloud set up is best for organizations with unpredictable needs and those that require control over their environments. SOTG is ideal when shared computing environments are not suitable, such as mission-critical workloads, management and uptime requirements, and security concerns. It's a secure network that results in 24/7 access anywhere with built-in redundancies to provide the greatest availability.

Thin Client Ecosystem

Set up an SOTG deployment for application or desktop virtualization, data processing, and file storage. Connect thin or zero clients to the Mobile Server and they're ready for use in a

Applied Engineering Software Group (AESGI) Case Study

"Typical projects for AESGI tend to be fairly diverse – both large and small in the types of server, storage and networking and/or software problems."
- Gregory Carter, Owner AESGI

AESGI used to haul around a desktop-class system weighing more than 80 lbs, which used 600W and tripped a UPS.

They deployed a Eurocom Mobile Server, the Panther 5SE, and started using only 130W. At times, the SOTG runs between 50-100 virtual machines.

"The analytic, software development, infrastructure management work I do on the server, storage and network problems many of my customers have requires simulation study. So, I used to haul around a desktop class system and run many of my own tool sets for identifying customer problems on that machine. It became a pain to haul around 80 pounds of gear. Sometimes it was a problem at a customer site to fit the gear in a customer facility if it had to stay on site overnight, it was simply too big.

When I saw a laptop that could run a XEON class server processor, I decided to have a look at the Panther 5SE. I found the machine could run all the tool sets I use, just as well as the desktop server machine I would haul around."

centralized manner with protected access to other networks and the Internet with enforceable security policies and access to storage.

Business Benefits

- Out-of-the-box solution: Complete, all-in-one, turn-key deployment of Mobile Workstations and Mobile Servers for EOTG, SOTG, and RED Team.
- Reduce non-productive time: With equipment ready to go at the press of a button, downtime is greatly reduced – work anywhere, even when traveling.
- Make changes as you go: Ability to design products and address concerns in the field, directly interfacing with clients. Get feedback and make quick, face-to-face adjustments with final users, customers, co-developers, and other third parties.
- Easily relocate: Offer clients engineering capacity onsite, anywhere, and easily move locations with efficient set-up and tear-down.
- Reduce costs: Your time to market is reduced, no downtime, and reduce development costs of projects.
- Increase profit: Ability to increase company revenue and market share by moving quickly, efficiently, and effectively. Ability to introduce new services to new vertical markets due to increased capabilities and reduced downtime.

History

The Mobile Server category was developed in 2003, when Eurocom launched the first-ever server-class laptop, the Eurocom Phantom. In 2007, the Eurocom Phantom X became the first Intel Xeon-based laptop. Eurocom continues to develop, refine, and perfect this technology to this day. The culmination of these efforts is the currently-available Eurocom P5 Pro SE, which continues the tradition of highly-capable, stable, expandable, and upgradeable server-grade hardware from Eurocom.

Conclusion

Eurocom's Server-on-the-Go deployment offers socket-based Xeon E3-1200 v5 series processors in a completely customizable, serviceable, and scalable platform, Mobile Servers.

Industries with temporary set-ups requirements, emergency management, training, and military and law enforcement can see major benefits in comparison to traditional servers through SOTG deployment with quick set-up and tear-down.

Lightweight, energy-saving, rapid deployment, less manpower, total mobility, and ease of logistics and convenience make Eurocom's SOTG deployment attractive, affordable, and innovative.

For more information, contact: sales@eurocom.com

Appendix

Mobile Server Comparison Chart

	EUROCOM P5 Pro SE	EUROCOM P7 Pro SE	EUROCOM Tornado F5 SE
			
Display Size	15.6"	17.3”	15.6"
Weight w/battery	3.4kg / 7.48lbs	3.9kg/ 8.58 lbs	2.92kg/ 6.45 lbs
Dimensions WxDxH	386x262x35mm; 15.4x10.48x1.4-inch	418x282x16-38.7mm; 16.72x11.28x0.64-1.55-inch	390x266x39.8mm; 15.6x10.64x1.59-inch
Chipset	Intel Z97 Express Chipset	Intel Z97 Express Chipset	Intel C236 Server Chipset
CPU-class	Xeon E3-1200 v3 series	Xeon E3-1200 v3 series	Xeon E3-1200 v5 series
CPU Upgradeable	YES, socket LGA1150	YES, socket LGA1150	YES, socket LGA1151
GPU	Modular MXM 3.0	Modular MXM 3.0	Modular MXM 3.0
LAN	1GbE Ethernet on-board; RJ-45 Realtek RT8111G	1GbE Ethernet on-board; RJ-45 Realtek RT8111G	1GbE Ethernet on board; RJ-45 Qualcomm/Atheros E2500
Storage Bays	Supports 4 physical drives (2x M.2 NVMe + 2x 2.5")	Supports 4 physical drives (2x M.2 NVMe + 2x 2.5")	Supports 3 physical drives (2x M.2 NVMe + 1x 2.5")
Storage Drives	up to 12TB	up to 12TB	up to 8TB
RAID	0/1/5/10	0/1/5/10	0/1
Memory	up to 32GB DDR3L-2133	up to 32GB DDR3L-2133	up to 64GB DDR4-3200
Memory Slots	4x 204-pin SODIMM sockets	4x 204-pin SODIMM sockets	4x 260-pin SODIMM sockets
Internal Battery	8 cells Smart Li-Ion; 82WH up to 130 minutes	8 cells Smart Li-Ion; 82WH up to 130 minutes	8 cells Smart Li-Ion; 14.4V; 5225mAh/75.24Wh up to 130 minutes
Expansion Capability	N/A	N/A	Thunderbolt 3/USB 3.1 type C
Keyboard	Internal	Internal	Internal
Power	External 230W AC Adapter	External 230W AC Adapter	External 230W AC Adapter
OS Supported	Microsoft: Server 2012R2, Windows 7, Windows 8.1, Windows 10; Linux/Ubuntu VMware	Microsoft: Server 2012R2, Windows 7, Windows 8.1, Windows 10; Linux/Ubuntu VMware	Microsoft: Server 2012R2, Windows 7, Windows 8.1, Windows 10; Linux/Ubuntu VMware

About Eurocom

Eurocom Corporation was founded in 1989 by President Mark Bialic. Throughout its history, Eurocom has provided high-end, innovative technology. The inventor of Desktop Replacement Notebooks™, Eurocom introduced Mobile Workstations in 2002. This was followed a few years later by the World's First Xeon-based Mobile Server in 2007.

A pioneer of computing technological standards, Eurocom pushes technology to new limits, including their invention, desktop-replacement laptops: Mobile Workstations, Mobile Servers, and Mobile Supercomputers. Eurocom's leadership and guidance around technology development drives innovation in major technology players, including Intel, NVIDIA, and Micron.