



vadatech Ltd.
THE POWER OF VISION

CUSTOMER REFERENCE STORY

High Density Application Server

MicroTCA Architecture Delivers Remote System Management Capability

Opportunity

While MicroTCA is recognised as a cost-effective alternative to AdvancedTCA in small to medium sized telecom applications, the architecture makes it very attractive in other applications requiring high availability. In a world that is increasingly network-centric, such applications are now widespread. The high internal bandwidth, multiple interconnects and integral platform management capability make the architecture suitable for a broad range of network security, and application and video server tasks.

Vision

VadaTech was approached by a customer needing a video processing platform that can operate 24/7. This application server had to include platform management and remote monitoring capability, since it would be widely deployed in high quantities. The customer had surveyed available open standard architectures and concluded that MicroTCA was a strong fit for the requirement.

MicroTCA was a natural fit for both compute density and high availability. The challenge for this application, however, came from the very high number of units to be deployed, making the platform extremely cost sensitive. Discussion with the customer led to a clear

understanding of the business cost drivers, in particular those associated with the deployment location. The platforms were to be installed in data centres, where space is charged per 1U rack height. This means that a critical cost metric is the number of processing blades that can be housed in a given rack height—and by this metric VadaTech was able to propose a solution that gives a 3.5x benefit over competing solutions.

Innovation

Understanding the key requirements and cost drivers, VadaTech was able to propose a platform based on the MicroTCA architecture while innovating in the physical form factor. This allowed a deep 2U chassis to be designed, containing more than 10 processor blades per shelf and with full MicroTCA infrastructure. Redundant fans and power supplies achieved the target MTBF without the need for hot-swap blades. This allowed the use of front-to-back airflow without additional plenums, avoiding potentially wasted space.

VadaTech Value

Putting high-power processing units into a chassis that is only 2U high led to a challenging thermal issue. Each chassis would need to dissipate over a kilowatt while supporting hot-swap capability for the fan units. In addition, achieving the required compute density

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meant that the processor blades needed to be long as well as thin, meaning the heat rise across the board length was made worse. VadaTech addressed this by carrying out a detailed thermal analysis and designing a heatsink optimised for both processor placement and chassis airflow.

Uniquely in the MicroTCA ecosystem, VadaTech has products for each element of the platform—MCH, cooling, power, payload, etc.. In many cases these platform elements are available in multiple form factors, since they are used across a range of physical configurations. This wealth of existing designs meant that initial platform prototypes could be produced extremely quickly. Modular infrastructure products were included in the design, allowing existing management software to be used. This gave the customer the advantage of knowing that the bulk of the chassis electronics and software was mature and stable.

With such large numbers of units to be deployed, cost optimisation was a constant drive. The connectors for the processing blades were selected on the basis of minimum cost for the required performance. Mechanical design allowed the use of highly cost-effective power supplies. Board layout allowed for automation in assembly and test. Even the design of the 19" mounting flanges was based on minimising installation costs.

Looking Forward

At the time that this platform was developed, VadaTech had just broken ground on a new facility designed to double production capacity. That increase allows the company to support much higher volume supply contracts, so this class of application is increasingly forming a key part of the business as it continues to grow.



Rear view of 2U Application Server

VTUK/DS/MKTG/0040.1

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