

Azul's third-generation appliances, now scaling to 864 cores, are aimed at new markets

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Sector: Storage & Systems

Event summary

- There's been renewed activity at Azul Systems over the past few months, including presentations to customers in the US and Europe of the company's third-generation Java offload appliance, Vega-3, which expands the number of cores in a chassis up to 864.
- Azul has struggled with long sales cycles, but is now sufficiently confident to boost its sales force and take its story beyond financial services users into new market sectors, notably e-commerce, Web hosting, media and entertainment, and telcos.
- If the workloads fit, then the price/performance gains can be significant, and there's an eco-efficient story, too. The hard part is convincing customers to look at what to many is still a novel approach to system architectures.

The 451 take

Azul saw some difficult times toward the end of 2007, but now has its funding and new management in place (cofounder Scott Sellars is now CEO). Although the concept of transparent compute offload of Java workloads from mainline servers is essentially a simple one, it's been hard for Azul to convince large customers to adopt an essentially new architecture. The incumbent server makers, especially Sun, would also rather not lose sales of large servers to offload appliances, and may be contributing some FUD here. We believe there's further mileage in the idea – .NET workloads for one. Azul says it's looking at advanced managed runtimes, extended appliance capabilities for OEMs, and further performance and latency improvements.

Details

Azul launched Vega 3 in May; it's the third generation of its Java offload appliances that offer a pool of processor and memory resources for multiple applications from Solaris, Linux, **HP-UX** or **IBM AIX** operating systems. The original Vega 1, launched back in 2005, scaled up to 284 cores with 200GB of memory. Vega 3 now takes that up to 864 cores and 768GB. There are two versions: the 5U-high Vega 3 3300 Series (108-216 cores) and the 14U 7300 (216-864 cores). Vega 3 is based on a proprietary 54-core chip (up from 24 in the Vega 1 and 48 in the Vega 2), so 16 of them are used in the top-end 7300 boxes.

Other performance boosters include improved 'pauseless Java garbage collection' and more efficient inter-virtual-machine communications that Azul calls DirectPath. It has effectively built a virtual data fabric, across which multiple component-based applications can communicate at bandwidths of up to 150Gbps with latencies below 40 microseconds. There's also RTPM, a real-time performance manager for optimizing Java application performance.

Expanding its sales team, Azul is pitching into new market areas beyond the financial services customers where it first gained traction. Target applications include Web hosting, B2C Web portals, gaming, music and video streaming, and telco service creation and delivery. **British Sky Broadcasting** runs its **Vignette**-based Sky.com enterprise portal on Azul.

Competitive landscape

No direct competitors have followed Azul down the compute appliance path, perhaps because it's still viewed as something of a niche market. Yet the general trend toward virtual-machine-based application frameworks (such as Java and .NET) and the multithreaded nature of those applications, which enables them to take advantage of multicore processors, should, in theory, help expand the potential market for Azul. There's no work yet on native support for .NET on Azul appliances, but the new additions to Vega 3 make it more applicable to a wider range of Java apps, including service-oriented architecture implementations. Currently Azul views its competitors as the standard server makers, particularly **Sun Microsystems** with its multicore T2000 Niagara servers, and increasingly **Intel** x86 quad cores.

Azul cites three customer examples of how its appliances can be used to reduce overall server footprint (and thus power and cooling requirements). At **CitiStreet**, 48 dual-core x86 servers were reduced to eight, with four Azul appliances. Sky cut 24 Sun V440s down to four, with two Azul appliances. And **Circuit City** reduced eight Sun T2000s down to two, with two appliances. Performance gains varied from 5-40% greater throughput, with up to 18 times faster response times, at about half the power consumption and with cost savings of about 30%, according to Azul figures.

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