Case Study
Fortune 100 Insurance Company

Industry
Insurance

Company
Large Insurance Company is ranked in the Fortune 100 with over 50,000 employees and over $100B in assets.

Business Challenges
• Need to roll out Hadoop infrastructure
• Cost of legacy approaches was discouraging
• White-box approach left Large Insurance Company as a systems integrator when they instead wanted to run their businesss

Solution
• Deploy Pluribus TOR/Leaf providing 10G server connectivity and 40G uplink
• E68 as traditional TOR/Leaf and F64 to do TOR/Leaf and OpenStack Controller duty

Insurance Company Reduces Cost for Big Data

The Challenge
A major insurance company had successfully rolled out a new Hadoop infrastructure leveraging ‘white-box’ compute servers vs the name brand incumbents. They were impressed at how inexpensive the computing solution was compared to previous deployments, and how easy it was to deploy and support. Given all of the industry momentum surrounding white-box and ‘brite-box’ for networking, they looked at this investigation as a logical follow-on. Their research revealed some of the integration challenges posed by generic white-box switching, where the customer must act as the system integrator so they preferred to take a brite-box approach where the vendor integrates the hardware and software and delivers as a package. This approach is closer to the traditional enterprise networking model, but still permits them to benefit from commodity pricing and innovative capabilities.

Insurance company was aware of the Pluribus E68 and F64 based on their research and also was aware that the Netvisor operating systems had been ported to other OCP/ONIE platforms, such as those from DELL. They invited Pluribus Networks to participate in their RFP, and approved a Proof-of-Concept.

<table>
<thead>
<tr>
<th></th>
<th>Traditional (Integrated/Turnkey)</th>
<th>Brite-Box (‘Branded’ White-Box)</th>
<th>White-Box (Disaggregated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendors</td>
<td>All</td>
<td>Dell, HP, etc.</td>
<td>SDN vendors and ODMs</td>
</tr>
<tr>
<td>HW/SW Integration</td>
<td>HW+SW fully integrated and cannot be decoupled - lock-in</td>
<td>Integrated by vendor but may be decoupled - customer choice</td>
<td>Customer must integrate (DIY); NetOps ‘unfriendly’</td>
</tr>
<tr>
<td>Support</td>
<td>Single source for both</td>
<td>Single source for both</td>
<td>Separate HW and SW</td>
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<tr>
<td>Adoption</td>
<td>Universal</td>
<td>Early deployments in enterprises</td>
<td>Limited to cloud and hosting</td>
</tr>
<tr>
<td>Pluribus</td>
<td>F64, E28Q</td>
<td>F68, Supermicro</td>
<td>Available</td>
</tr>
</tbody>
</table>

Adapted from Gartner

Only Pluribus fully embraces all three business models
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Business Benefits
• Assuming 100 rack deployment, CAPEX savings alone are expected to be $500k-$1m
• Platform automation expected to enable similar OPEX savings
• Pluribus brite box solution took them out of the systems integration game, let them get on with business
• Brite box solution retained white box economics while delivering legacy networking ease of management and deployment

Product List
• Pluribus F64
• Pluribus E68

It soon became clear to them that Netvisor based on the Pluribus Virtualization-Centric Fabric (VCF™) technology offered fabric, analytics, and virtualization features beyond the other general purpose SDN software vendors when coupled with a white-box, demonstrating the enterprise value of Pluribus far beyond that of sheer economics. The Pluribus offering, as a brite box solution, eliminated the need for the customer to perform their own system integration and support. A key selection criteria was the Pluribus solution’s ability to work with the existing Layer-2 and Layer-3 production network already in place.

The Solution
The new Hadoop cluster consists of 100 racks, each with a top-of-rack (TOR) switch. The TORs (leaves) connect via 10G to the white-box servers with 40G uplink to another tier which then connects via 100G to 6 spine switches. These spine switches then connected to another layer of two spine switches at 100G. As with many big data deployments, BGP is used for routing, in this case between the leaves and spines. Each leaf will have a route to all six spine switches, which are also configured as BGP Route Reflectors to minimize the number of routes across the cluster.

![Image of Hadoop Network Cluster Architecture - 144 Leafs per Cluster - Additional Clusters added as required - 1,000s of Servers -](pluribusnetworks.com)

Figure 1 - The Eventual Network Configuration as Planned
The insurance company initially deployed a POC consisting of 2 x E68M-SDF and 1 x F64-CLA. This was to test the Pluribus fabric, analytics, and routing. Given that 100 Pluribus nodes are in use at the TOR, the customer is optimizing their applications to determine how many logical fabric-clusters are required. At some future point, the customer plans to deploy OpenStack for orchestration between their compute and network layers. To support this, the OpenStack Nuetron controller will be deployed within the Pluribus F64 switches natively to provide hardware assist for the OpenStack controller.

The customer now has two deployment options. The deployments leverage the E68, where the hardware and software is pre-integrated. In the second option, the customer may also decide to source the switching hardware from a 3rd party OCP-compliant ONIE switch provider, such as DELL. In this case, Pluribus has committed to certify a given ONIE hardware and Pluribus Netvisor combination.

Figure 2 - The Pluribus POC Involves two E68s and one F64