

Jabil Software Services (JSS)



Embedded
Systems

Web &
Mobile

IoT

Cloud

Wireless
Networking



Wireline
Networking



CASE STUDY

Gigabit Networking

JABIL

Customer Needs

Jabil's customer is a leading global provider of open disaggregated networking and communication solutions that enable voice, data, video, and Internet communications across a variety of network infrastructures. They empower communication service providers to deploy, manage and scale connectivity solutions, including mobile backhaul, optical network edge, passive optical networks, network management solutions and FTTN DLAMs.

Jabil's customer required the development of two G.fast Data Processing Units (DPU's), including 24-port and 48-port units. The customer required the development to be completed within a short timeframe due to pressure from their end-customers. The products were designed primarily to address the North American and EMEA markets, and they represent the first time the customer has supported 24/48 port DPU's with 96-port vectoring based on second generation G.fast technology.

The customer required the following key features:

- 48-port G.fast DPU supporting 212MHz G.fast profile
- 24-port version based on the same design
- Stackable with 96-port vectoring, 106MHz profile
- 2x10G uplink
- NetConf/Yang management and MOSAIC CP support
- Outdoor housing in pizza box design with active cooling

The customer required several tailored solutions for each target market, as follows:

- North America:
 - Indoor FTTB, 48-port, 212MHz, pizza box design
- Europe:
 - FTTC, 48-port OSP, 106MHz, sealed version
 - FTTB, 48-port, 212MHz, pizza box design
 - FTTB, 24/48-port, 212Mhz, pizza box design
 - FTTB, 48-port, 212MHz, FTTB indoor housing, alternative OSP solution without rack
- Middle East Africa (MEA)
 - Indoor FTTB, 48-port, 212MHz, pizza box design

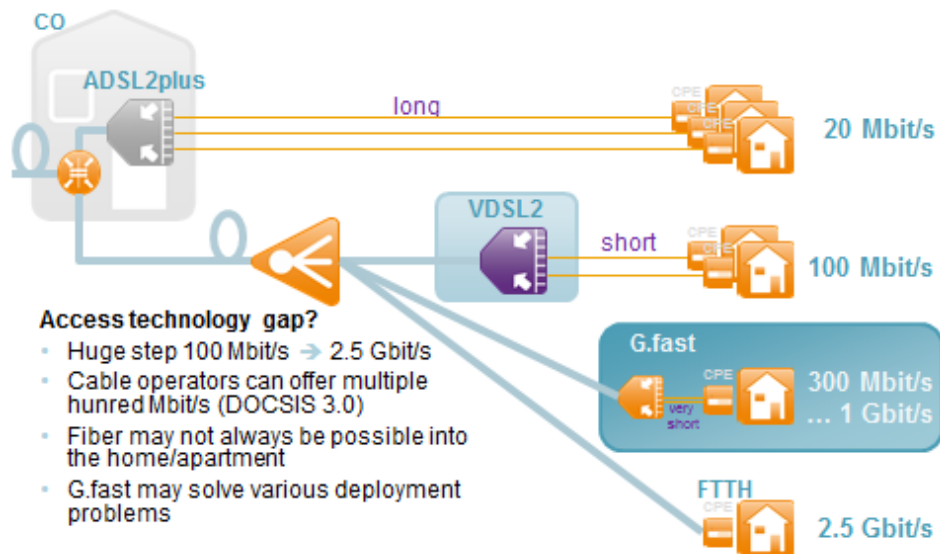
Scope

JSS was responsible for porting the customers embedded OS to the new DPU products, including:

- Adaptation of the Traffic Manager to WP4 NPU by replacing the Broadcom-based Switch Management Ethernet layer with a WP4-centric layer.

- Adaptation/replacement of the packet TX/RX layer with a WP4-centric implementation.
- Implementation of a hardware monitor daemon, leveraging existing hardware monitoring code from other DPU products.
- Implementation of a debug CLI for direct on-DPU access to the traffic manager.
- Development of Linux OS, SDK, and driver adaptations.
- End-to-end testing, including L1, software module, component, robustness, performance, customer use case, scalability & security testing.

The solutions developed by JSS leveraged G.fast, a new technology used to provide symmetric gigabit broadband utilizing existing installed copper, bridging the gap between VDSL2 vectoring deployments and FTTH. The following image demonstrates how G.fast compares with VDSL2 and FTTH.



JSS dedicated a team of 23 staff to developing the customer solution, including architects, embedded developers, and testers. Technologies leveraged as part of the development included C/C++, Microsemi WDDI SDK, Tooling (JIRA, Confluence, Quality Centre, Perforce, GitHub, Loadpress), ROBOT, CI-Pipeline (incl. TAUT), Jenkins, YANG, Linux-OS (LSK), MicroSemi, BRCM, the customer's embedded OS, Python & Netconf.

Deliverables

JSS brought to bear deep experience in L2/L3 protocols, MCU's, end-to-end testing, and communication equipment to deliver these solutions, leveraging an Agile methodology across several sprints over an 11-month period. JSS and the customer

clearly agreed scope and schedule expectations, and JSS leveraged a formal project management methodology to ensure efficient delivery, including several clearly defined stage-gates. JSS delivered a fully functional and tested boot loader, OS, and a range of ancillary device applications.

Strategic Value

The end-customer received the new second-generation DPU platforms ahead of schedule, facilitating faster equipment rollout and improved customer service. These products form a key building block in the technological foundations of the customer's solution suite.

"JSS delivered the requisite solutions ahead of schedule, giving us confidence to extend and deepen our partnership with JSS for the development of future solutions. I am impressed that JSS was able to bring-up new hardware in the customer environment and run services on the first day of development. Kudos to the JSS team!"

Customer Sales Manager

About Customer

Jabil's customer is a leading global provider of open disaggregated networking and communication solutions that enable voice, data, video, and Internet communications across a variety of network infrastructures. They empower communication service providers to deploy, manage and scale connectivity solutions.

They supply local loop access and deployment products for fiber, DS3, T1/E1, wireless T1/E1, digital subscriber line (HDSL, HDSL2, HDSL4, SDSL, SHDSL), Frame Relay, Asynchronous Transfer Mode (ATM), Integrated Services Digital Network (ISDN), and Digital Data Service (DDS) digital services. They also supply multi-service access platforms and Integrated Access Devices (IADs) for converged voice and data networks.

About Jabil Software Services (JSS)

Jabil Software Services (JSS) delivers a broad range of advanced software services across several industries, leveraging an experienced team of architects, software developers and quality assurance engineers. JSS specializes in the efficient development of embedded systems, web & mobile apps, IoT solutions, cloud solutions, and networking solutions (wireless/wireline).