

Andelyn Biosciences selects Arista Networks for state-of-the-art facility as part of its innovative Industry 4.0 campus strategy

Highlights

Challenge

To build a manufacturing 4.0 smart facility, gene therapy pioneer Andelyn Biosciences chose a unified campus-wide solution from Arista Networks that delivered enhanced performance, reliability, and scale with simplified management capabilities.

Solution

- Arista 7000 Series spine and leaf switches for high performance, low latency, and scale
- Data center and campus switching with Wi-Fi as part of a unified stack
- CloudVision software delivering single view of the entire network for simplified management and automation

Results

- Open standards-based approach to simplify support, upgrades, and automation
- Consistent Extensible Operating Systems across entire network simplifies management tasks
- Proven path to 400G through consistent roadmap

As a world leading contract development and manufacturing organization for gene therapy, Andelyn Biosciences' new state of the art facility needed unified connectivity to meet its vision of being "The Digital CDMO". To meet these goals, Andelyn Biosciences selected Arista Networks to successfully deliver a modern spine and leaf network architecture, built and tested virtually, ahead of successful implementation using a cloud-first approach.



Company Background

Andelyn Biosciences is a pioneering cell and gene therapy organization born out of Nationwide Children's Hospital, where the first FDA-approved systemic gene therapy was discovered. Derived from the name of two gene therapy pioneers who participated in pivotal Phase I clinical trials at Nationwide Children's Hospital, Andelyn Biosciences honors all the families who have courageously participated in the research that make today's gene therapies possible.

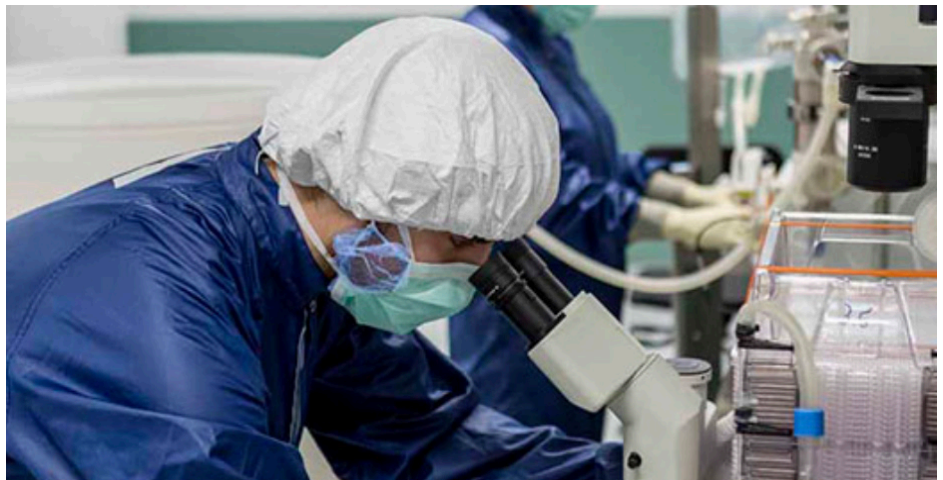
Challenge

Today, Andelyn Biosciences is a world leading contract development and manufacturing organization (CDMO) for gene therapy. Clients range between small biotech firms, large pharmaceutical companies, hospitals, and research institutes. Andelyn Biosciences supports these clients to advance treatments from development to commercial products.

In 2020, following its separation from Nationwide Children's Hospital, Andelyn Biosciences began building its new manufacturing center at a 180,000 square foot facility in the innovation district of Ohio State University's West Campus. This was followed by a development facility in Dublin, Ohio to meet growing demand for its innovative services.

Although Andelyn Biosciences' core staff have decades of experience within the field, the newly spun-out operation started with a completely blank canvas. As Bryan Holmes, Vice President for Digital & Technology Solutions at Andelyn Biosciences explains, "What we're building here is a concept that we're referring to as The Digital CDMO. Our goal is to digitize every process and really ensure the value of our data assets, that are created during the development and commercial lifecycle of a product, are put to best use."

Andelyn Biosciences' vision is to build an Industry 4.0 environment within a smart factory that uses sensors, data, and real time intelligence to deliver the same as an 'on-site' experience to customers anywhere in the world. "To this aim, it becomes super critical that we have the right connectivity, the right networking equipment, the right firewalls, and the right strategy in order to segment equipment and the data and build a truly connected plant," he adds.



Solution

Without the encumbrance of a legacy networking technology for the new facility, Holmes and his team began a deep evaluation of the viable options. "We looked at the entire ecosystem and strategy from scratch," he explains, "Our goal was to look for a unified solution where we could really manage everything centrally to build a network in advance. We felt that the legacy vendors we were already familiar with had a rather piecemeal approach, so we started looking for alternatives."

The new facilities required an entire network fabric including data center switching, campus switching and Wi-Fi access points. After evaluating several options across key criteria including performance, cost, and scalability, it was Arista Networks that was deemed the best solution.

As Steve Hudec, Senior Architect for Network and Compute at Andelyn Biosciences says, "One of our biggest drivers is to be cloud native and the fact that Arista offers a single SaaS-based managed platform across both the wired and Wi-Fi network - we saw that as a major advantage that really tipped the balance for us."

Another benefit was the simplicity of the management stack. "We are taking Arista CloudVision® as a managed service and this is a big advantage for us," says Hudec, "I don't have to worry about monitoring or maintaining any of the management infrastructure because that's done as a service for us."

"In traditional legacy environments, to manage all the vendors' products we had to have multiple management platforms. With Arista, especially from a wired networking perspective, it doesn't matter if it is campus networking, data center networking, or routing, it's all the same code, all the same commands, and it's all done from the same portal".

During 2021, Andelyn Biosciences built out the new network based on a spine and leaf architecture centered on highly resilient 7280SR Series fixed configuration switches. These offer a flexible arrangement of 10/25/40/100GbE ports with up to 12 terabits per second throughput and ultra-deep packet buffers. The network leaf structure uses mostly 7050 Series switches offering an ultra-low latency 1RU platform to serve different requirements around 10G, 25G and 100G connectivity. All Arista 7000 series products run the same Arista EOS® software and binary image, simplifying network administration with a single standard across all switches.

Yet even before the first switch was on site, the Andelyn IT team used virtualized tools to design and test the implementation, collaborating closely with engineers from Arista. "We were able to spin up the entire network in container labs as virtual instances for every piece of equipment, build out and save all those configs," explains Holmes "So when the Arista equipment came, it was racked, stacked, and cabled. All we had to do was place the configuration onto the switches, and the network was up and running."

Conclusion

Andelyn Biosciences opened its new Dublin facility in June of 2022, followed by its new manufacturing facility at the Ohio State campus in September. The new facilities will allow their gene therapy innovation to support over 100 new clients with multiple programs from concept to commercialization with services across process development, analytical development, and preclinical production.

The Arista network has delivered the reliability and performance needed to meet Andelyn Biosciences' Industry 4.0 vision and Holmes believes that getting the network in place early was crucial to their success. "In the crazy world that we're living in, we were asked to expedite the roll out of the manufacturing facility and get it online six months faster than usual. We achieved an almost 25% reduction in the time we had allocated to implement a complex set of equipment at a brand-new Greenfield manufacturing facility. This saving allowed us to meet our customers and patients' needs."

"Arista was a big part of that success by being able to ensure that the right technology, products, support and partners were in place across the entire project to help us meet our tight deadlines," he concludes.



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