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Enabling Universal Data Mobility, Automation, and Modernization for Life Sciences Organizations

Zettar is collaborating with Intel to scale unified data movement solutions that tackle the complexity of life sciences data environments.

Example Data Sets that Need Timely Analysis Near Real-Time

A **Multiple discrete files of varying sizes over a long duration**

Ex: Output from multiple Cryo-EM microscopes

Transfer location
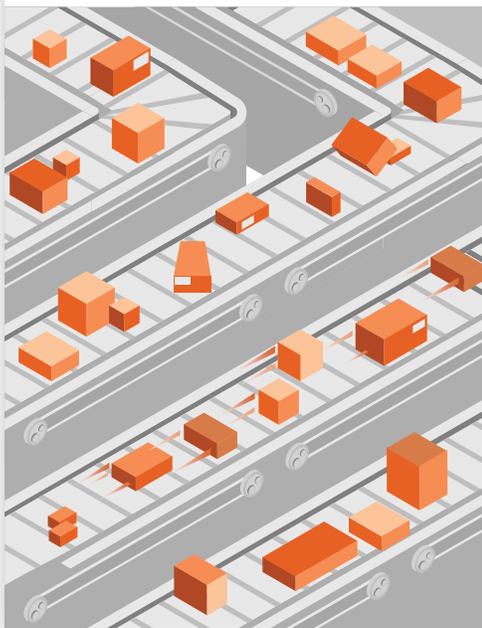
Emerging IT Trends Shape Data Storage, Movement, and Analysis

As life sciences organizations endeavor to develop new diagnostic and therapeutic solutions, a tremendous amount of data is generated. Optimizing the efficient movement of this data is an ongoing challenge.

The use of advanced instrumentation to help improve patient outcomes has created this exponential and ongoing data generation. Examples include the transmission electron microscopes used for structural biology research or the new photon-counting CT scanners. With environmental, social, and governance (ESG) related benefits and considerations, e.g., energy, space, and cost savings, in mind, life sciences organizations have started to leverage two prominent IT trends:

- Edge-to-core/cloud deployment paradigm
- Composable and/or disaggregated infrastructure.

The result is a gap between where data is generated and the preferred destination—an issue amplified by the complexity of the data environment and the emerging demand for real-time results, e.g., for modern high-end Cryo-EM microscopes. This gap makes efficient data movement mandatory for life sciences organizations. In order to keep up, the underlying infrastructure must be adequate to meet these demands.

Zettar zx Tackles Multiple Data Movement Use Cases With a Unified Solution

Most of the current data movement solutions on the market are single use-case oriented, such as implementing a one-time data replication solution for file system migration. Although effective for the individual issue, this approach quickly loses relevance in the complex environments that are often found within life sciences IT environments. For example, after the file system migration is done, what if the data in the file system needs to be moved to object storage? Life sciences organizations need a solution that can handle infrastructure complexities to unleash benefits such as accelerating workflows, optimizing productivity, and simplifying data management.

Zettar Append Streaming Meets Modern Data Movement Requirements

Zettar zx intelligently adjusts to the capabilities of the underlying infrastructure by adding a new dimension of flexibility to maximize data mobility. The solution enables high concurrency and extensive parallelism at storage, computing, and networking levels. It is versatile and capable of tackling numerous seemingly different data movement use cases consistently and efficiently for bulk transfer of already stored, existing data. The new Append Streaming also moves fast-growing, live data. Lastly, with a compact footprint, customers can easily integrate zx into an existing infrastructure solution.

Intel Adding Value to Zettar Append Streaming

Intel enhances this solution through Intel® Xeon®-powered edge servers that can help speed up data transfers across today's most demanding data-intensive workloads.

For instances where a user needs to offload specific workloads, Intel®-based SmartNICs can add additional flexibility. Based on their specific needs, end users can move data more efficiently, while running diverse workloads, with Intel® architecture.

How Append Streaming Works

First users can prepare their infrastructure to fit within the desired data rate by accurately provisioning storage, computing, and networking needs. Once the infrastructure is ready, users can install Zettar zx on their preferred devices and adjust solution settings in accordance with the given environment. After installation, users will need to provide the following three pieces to Zettar:

The data source

The current location

The preferred data destination

Once the user has provided these three items, the solution then leverages built-in web user interface and REST APIs to carry out data movement tasks that accelerate workflows and productivity, simplify data management, and enable the user's analytic solution to deliver near real-time business insights.

Key
→ Fan Pattern: partial bandwidth utilization
→ Chain Pattern: full bandwidth utilization
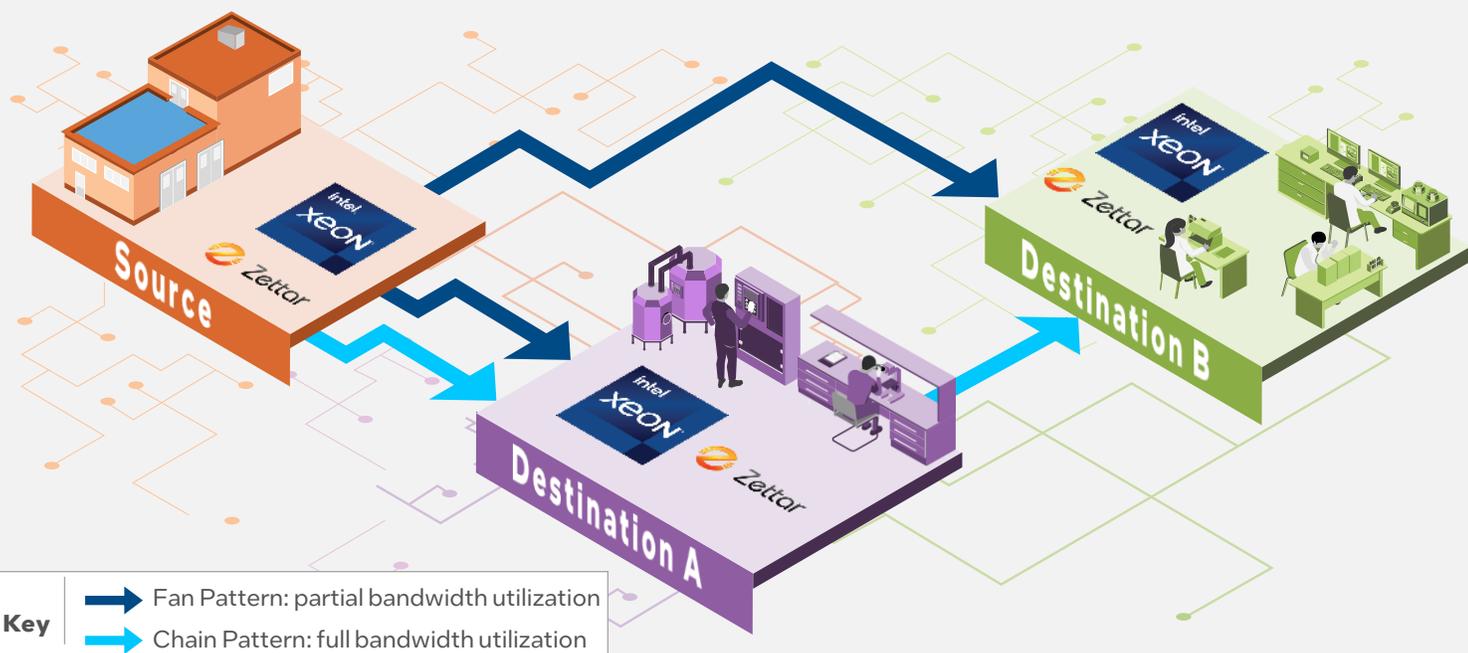
Zettar Append Streaming Enables Life Sciences Organizations to Consistently and Efficiently Tackle Big Data Transfer Tasks

In life sciences scenarios, end users need to run workloads based on data produced by sophisticated instruments such as **next generation sequencers, Cryo-EM microscopes, photon-counting CT scanners, and MRIs.** The Zettar Append Streaming solution enables efficient data movement, empowering end users to process data where it is most practical.

Connecting Cryo-EM Microscopes Across the Nation

There are three Cryo-EM centers in the United States and with Zettar Append Streaming solution, users may move their data to the destination of their choice, be it in the cloud, or an on prem data cluster. From there, life sciences organizations can access, transfer, and run AI models on their data.
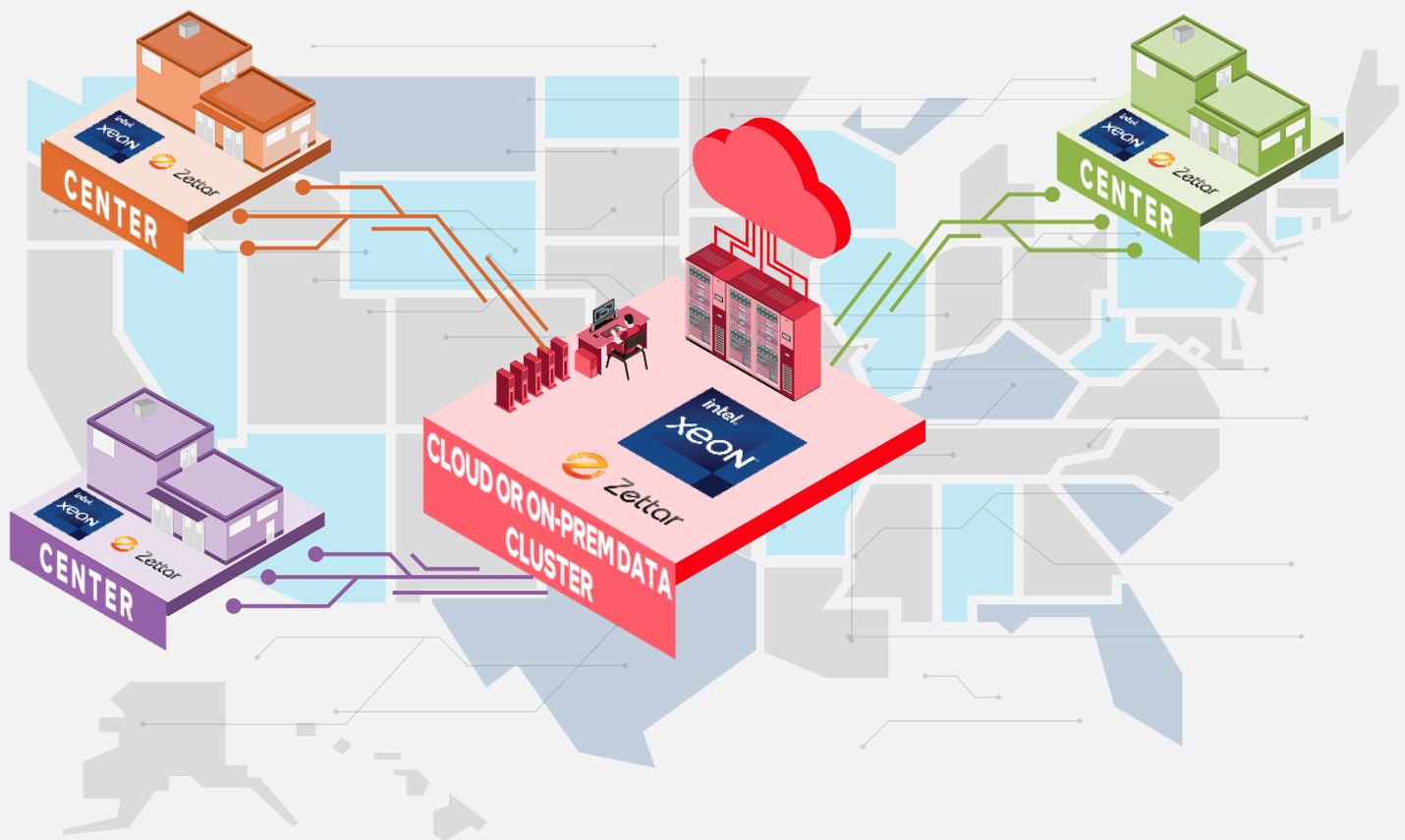
Conclusion

The Zettar zx Append Streaming solution provides deep, tech-powered, simple, scalable, and efficient data movement services enabling multiple pathways for data transportation in file storage, private cloud, and public cloud. By collaborating with Intel, life sciences organizations can process immense amounts of data at a range of size and speeds to optimize storage within complex data environments to meet industry needs.

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About Zettar

Zettar is leading industry innovation by helping enterprises maximize their data currency, providing them the ability of at-scale data movement, on-prem, in the cloud, or any combination thereof, across any distance. Zettar solutions are ideal for distributed data-intensive engineering and science workloads such as AI and machine learning tasks across large scale life sciences workloads and edge deployments.

Learn More:

Find more information by contacting health.lifesciences@intel.com or through the links below:

- Zettar Website
- Intel ® Health and Life Sciences Home Page
- Intel® Xeon® Scalable Processors Product Page
- Intel® Network Communications and IO Products Page
- Intel® Quick Assist Technology Product Page

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