

The life of a laboratory system administrator

Reducing risk and complexity



Expanding your role as a system administrator

Whether you are a newly converted person of responsibility, trying to enhance your systems for the first time, or have coordinated hundreds of system migrations, there is no one stage or experience that is the same as another. For those in regulated industry you tangentially understand that file security and data integrity hinge on your efforts to reduce the risk to your systems.

Growing a system in increments is possible with the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) and at each stage we have worked to reduce effort for the three main responsibilities for an administrator:

- Security Management
- Record Management
- System Management

Please note: while this roadmap is laid out in stages, it is only presented that way to help administrators plan what is possible from their own location. There is no requirement that the stages described must be followed in the order highlighted; that is the beauty and system flexibility that Chromeleon CDS can offer.

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Stage 1

Evolving a multi-system administrator

There can be a smell to new things; new cars have a smell, new computers have a smell, and even new analytical instruments have a similar ozonated plastic smell when you open the shipping container and start removing various packing Styrofoam, set screws, or even wooden pallets.

Once the new dream machine is revealed and hoisted on a bench, or one of those fancy carts someone had to assemble, then the service engineer is scheduled and eventually the instrument and associated computer go into use. Maybe, since you personally have the most knowledge about it, you become the system administrator and slowly take on more of the system administrator functions.

For growing companies or those with some capital budget, the lab fills with similar set ups, while you train new users, assign company certified external hard drives, configure adequate user access, and generally take on the work of a computer support specialist, multi system administrator, and overall master scheduler for updates, upgrades, and utilization.

Or maybe you have inherited this system after taking a new role and spent weeks categorizing, labeling, reorganizing and bringing order to chaos.








Regardless of how this point was reached, you've organically come to understand how to take care of and maintain your security, your file management and your systems, but maybe you are looking to slim down some of your administrative tasks while encouraging growth in your environment.

A simple Workstation Connect setup can centralize and reduce the burden of security management tasks while introducing remote clients to your users lining up to get time on a laboratory computer. It might work as a logical first step in a journey to a more connected environment.

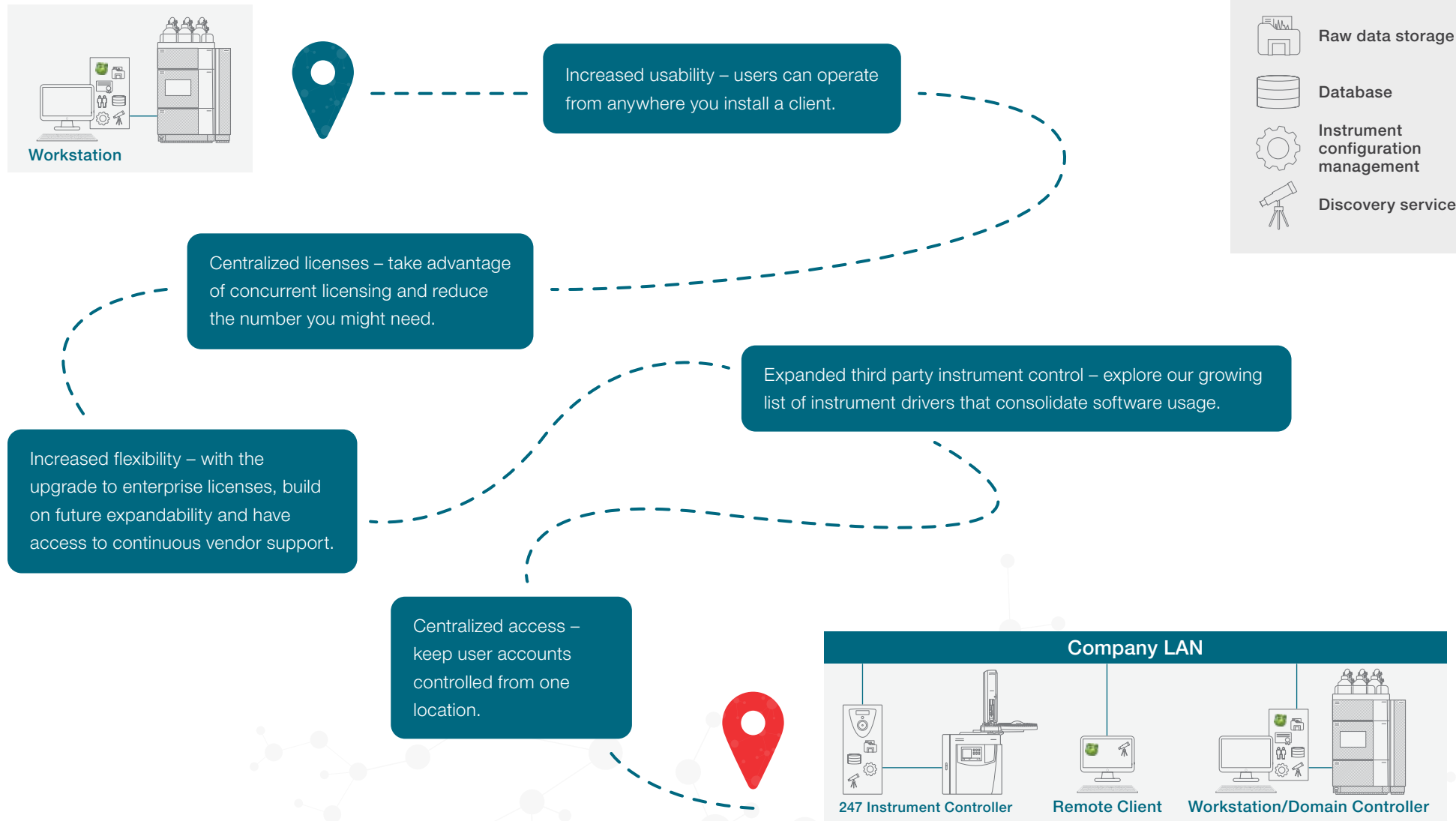
Stage 1

Growing a laboratory network organically still presents challenges. Expand as you need with Chromeleon CDS; we have tools and services to support you to achieve any of the milestones you wish to reach.

Legend

-  Client
-  Licensing
-  User management
-  Raw data storage
-  Database
-  Instrument configuration management
-  Discovery service

Highlighted experiences when stepping from disconnected Workstations to a Workstation Connect network:



Stage 1



Security management at any stage requires administrators to control who is accessing data. For some quick help on setting up your access control, discover the following resources:

- How-to video for setting [Access Control](#)
- How-to video for setting [Password Restrictions](#)



Record management means that files are securely collected and securely kept. Explore our library of resources for how Chromeleon CDS can help you with this business-critical task.

- Learn more about our [247 Instrument Controller](#)
- How-to video for securing data by [Locking Items](#)



System management for software grows into more than wiring computers to instruments, discover how to create a small network with Chromeleon CDS Workstation Connect.

- Learn more about [Workstation Connect](#)
- How-to video for [License Management](#)

Stage 2

Defining an enterprise administrator

Workstation Connect is a way to help connect systems together in order to simplify management for licenses and user accounts. This setup can reduce administration costs and effort, but maybe now you've reached a point at which the number of connected systems has increased the number of file locations requiring individual management.

Files have a way of multiplying and expanding seemingly overnight. File security demands that an archival, backup, and disaster recovery program exist which is hard to manage if there are multiple data locations and workstations.








Enterprise is a generic term for software that meets the needs of an entire organization and in terms of the next growth step, could be instrumental into reducing your file management efforts. Balanced enterprise systems also provide network stability and support a growing environment by slimming services and metering data transfers as the data is collected into secure database locations.

All of this spells less time managing and less worry that one of many file repositories may be moved, written over, or forgotten.

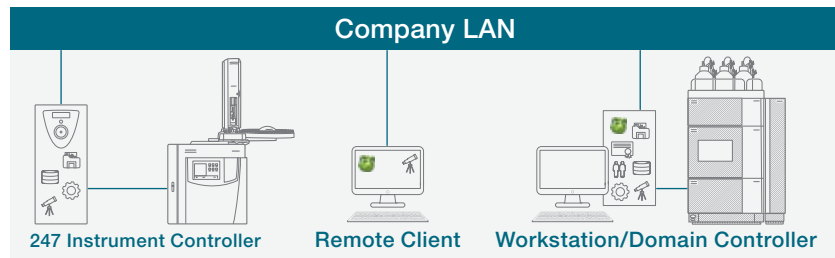
Stage 2

If you've reached critical mass for file management and organization size, it might be time to explore a Chromeleon CDS enterprise solution that covers more than a few instruments in a closed network.

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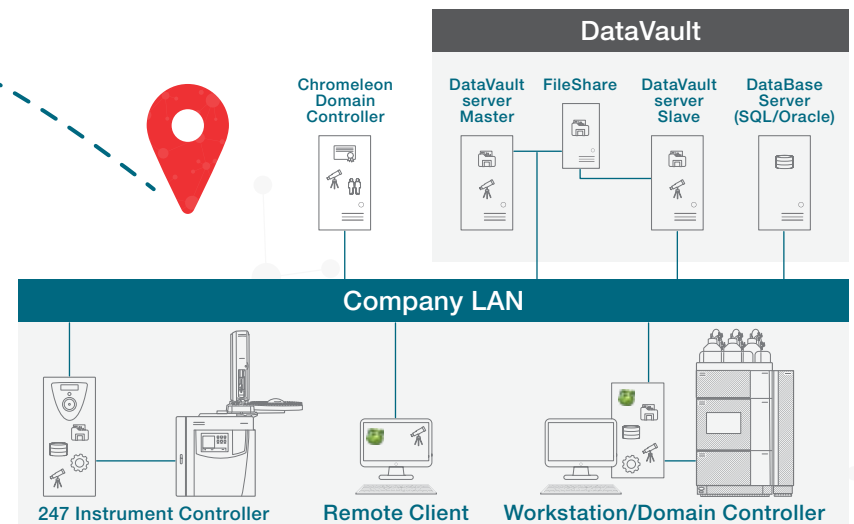
Highlighted experiences when stepping from a Workstation Connect to an Enterprise environment:



Centralized services manager – stabilize system functions and protect against network failure with a dedicated domain controller.

Simplified file management – maintain archival and backups from one location to reduce risk.

Centralized data access – keep data files such as raw data and methods in a shared, access-controlled, location.



Stage 2



Security management as an organization grows may require the ability to set access differently for parts of your organization. For information on a more flexible access control system, discover the following resources:

- Learn more about the [Ease of Administration](#)
- How-to video for [Controlled Devolution of Administration](#)
- How-to video on setting up [Organizational Units](#)



Record management when moving to Enterprise should centralize your efforts. Explore our library of resources for how Chromeleon CDS can help you manage your files.

- Learn more about [Backup and Disaster Recovery](#)
- How-to video for [Scheduled Data Archiving](#)
- How-to video to set up [Data Vault Load Balancing](#)



System management at an enterprise level may have you looking for support and materials to enable you to keep your system healthy. See how Thermo Fisher Scientific can guide you through this on-going process as you expand your system.

- Discover what is included in [Enterprise Support Plans](#)
- Support your lab by learning about how Chromeleon CDS will help you to [Ensure Business Continuity](#)
- How-to video for [Reassigning Instrument Licenses](#)

Stage 3

Powering a multi-geography administrator

An enterprise system may have introduced users to an ability to work collaboratively from any location and has reduced your security and file management tasks, but after a mind-shift to enterprise, the next real jump is streamlining further to allow more growth and reduce overhead for equipment and system administration.








Individually managed clients can become overwhelming in growing systems which complicates updates and upgrades. Reducing system administration starts with reducing administrative touchpoints which also has the ability to reduce security and file management risks.

Jumping to virtual hosting with a remote desktop server reduces the client installations required by allowing additional users to access through a central virtual server connection. With Chromeleon CDS, multiple locations can be combined into single or regional vaults to support load balancing with access and control services accessible through a wider area network within a firewall internet connection.

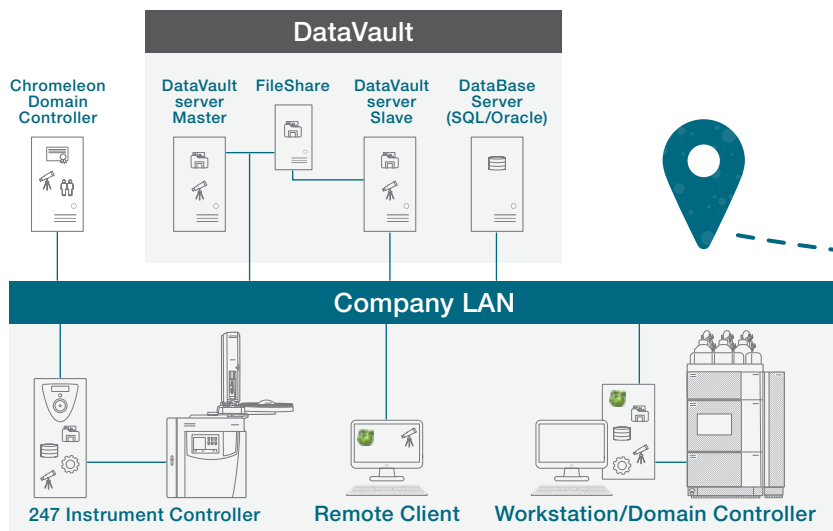
Stage 3

If your organization has grown across sites that wish to be connected, expand your enterprise solution into a virtual hosted environment with Thermo Fisher Scientific so points of contact can be reduced.

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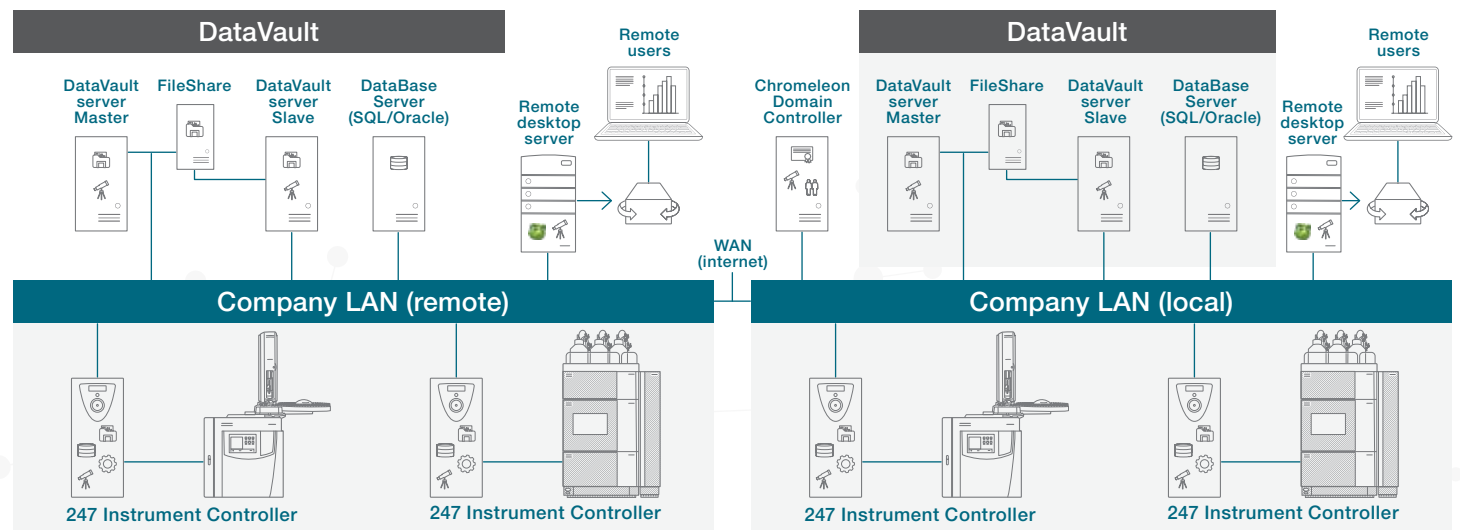
Highlighted experiences when stepping from a networked enterprise into a virtual enterprise environment:



Virtualized clients – allow for easier client management and streamlined future updates.

Globalized network – expand access across buildings, across countries, and across the globe.

Increased security – reducing points of access increases system control and reduces risk.



Stage 3



Security management set-up in virtual environments may have you looking for some product guidance or support. Browse support information or submit a request.

- Customers with support contracts can explore our [knowledge base](#) for some FAQs
- [Request support](#) directly from our services team



Record management in a larger deployment translates into secure file transfer with maximized uptime and network failure protection. Discover how Chromeleon CDS helps you set up instruments and keep them running.

- See how Chromeleon CDS can [Ensure business continuity](#)
- How-to video on how Chromeleon CDS ensures [Operational Security](#)



System management includes being aware of how systems can expand or manage future needs. See how Chromeleon CDS can support an expanding environment and how Thermo Fisher can support you as you expand.

- Read how Chromeleon CDS is [Built for Scalability](#)
- Discover how we can help with our [Enterprise Services](#)

Stage 4

Supporting a serviced administrator

An enterprise deployment initiative to host your environment virtually has decreased security touchpoints, consolidated file management across the globe, and decreased system administration but the infrastructure itself is something that requires additional maintenance.








As the servers age and operating systems require more updates and care, it could save further resources and time to host your networked solution in a pay-as-you need cloud environment.

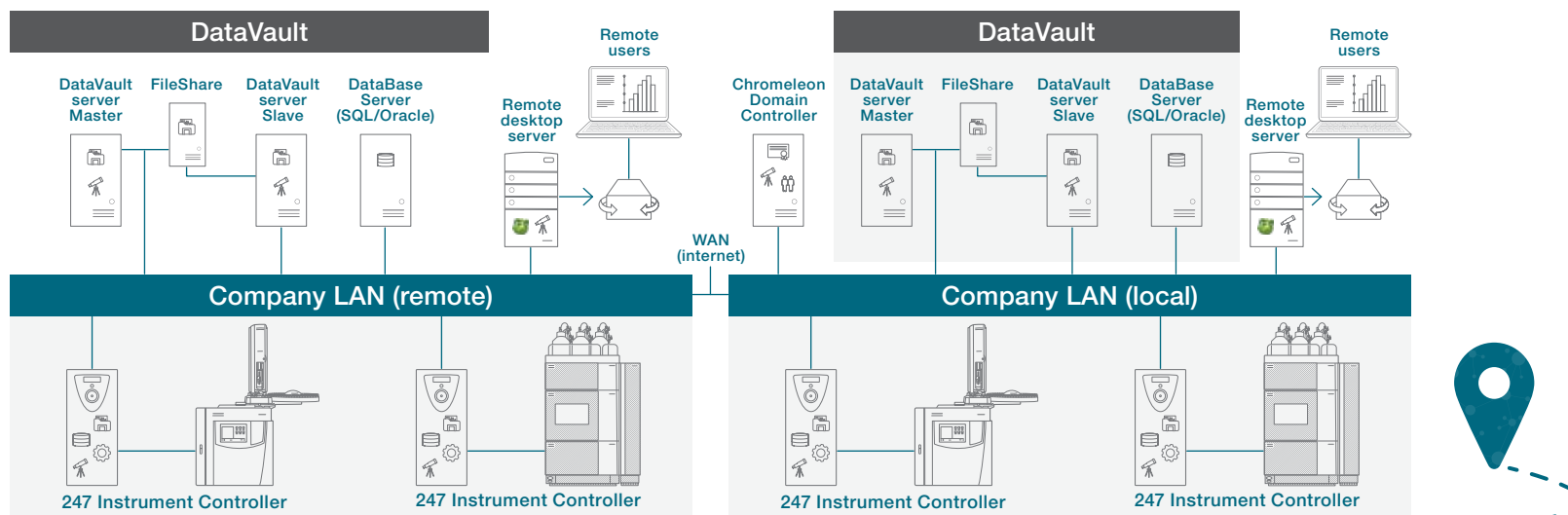
Managed cloud environments build in additional assurance against file loss as they often include automated backup and archival tools outside of software scripted and manually managed events. They still offer the same touchpoint reduction as a virtual hosted server, but don't require hardware upkeep or on-site expertise to maintain the basic platform.

Stage 4

If your organization is at a stage where server maintenance is easier through a hosted location, Thermo Fisher Scientific can help migrate, consult on options, or help install in a cloud environment.

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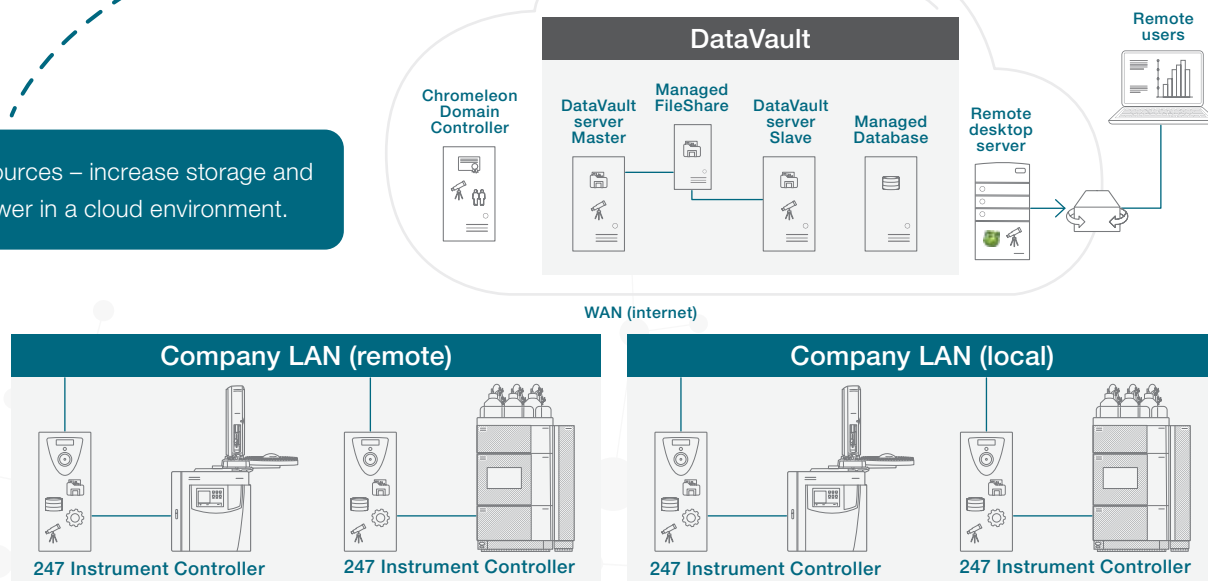


Highlighted experiences when stepping from a virtual enterprise environment to a cloud-hosted environment:

Expanded resources – increase storage and processing power in a cloud environment.

Reduced maintenance – shift responsibility for hardware to an expert service provider and take advantage of tools* and security systems for your data.

*Tools and support may differ per provider.



Stage 4



Security management only gets better as the tools evolve in our modern landscape. Discover how easy it is to manage Chromeleon CDS for your laboratory.

- Explore how Chromeleon CDS is **Built for IT**
- How-to video for how to simple it is setting up a system for **Managing Users and Roles**



Record management in a cloud hosted environment could allow for better connectivity between existing systems. Read more about how Thermo Fisher Scientific is enabling our products in the cloud.

- Read more about some of our **Current Cloud Coverage**
- Learn the terminology in **Demystifying the cloud**



System management at a larger scale could mean a lot of changes for the organization. Looking for knowledge support for hosting Chromeleon CDS in the cloud?

- Review information on **Capabilities for Large Networks**
- Watch how you can **Expand your business operations with Chromeleon CDS**

Stage 5

Expanding the horizons of an administrator

The next steps integrating systems become less formulaic and more personalized depending on the stages your systems are in and the overall goal of your program. There is a universe of software out there that may be included in your portfolio plans and you probably have questions for how to connect it all.

If the answer is database to database sharing of information from existing software, that transfer is often run through a software development kit (SDK).

Whether you're looking for a sample management system or an integrated lab management system, Thermo Fisher Scientific has a suite of products to help your lab achieve a connected state.

If you are looking to the future and are already hosting your environments in the cloud, you may be searching for a true cloud-native option. While virtualization allowed for the transition of single computer use per instrument in the lab to move to a shared interface, cloud-native slims software requirements by removing the need for virtual operating systems.

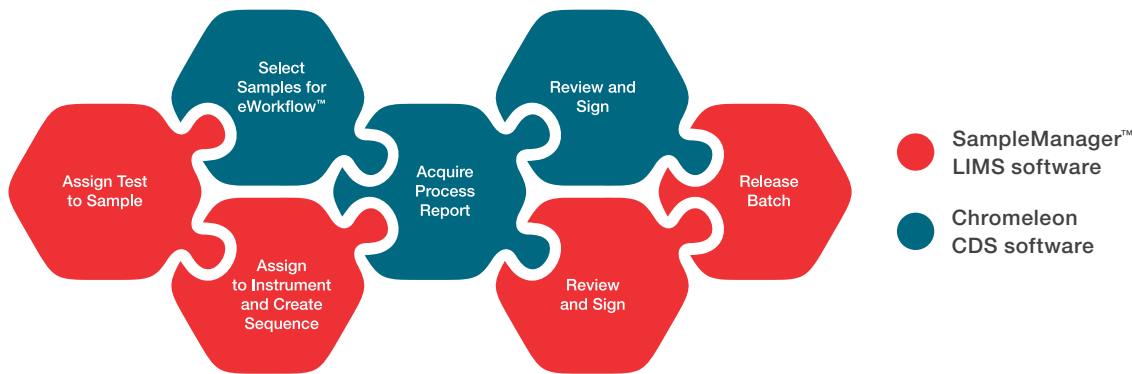
Cloud-native software is different than cloud-hosted and we are just starting to see the products come online to support the lab in a truly cloud-native way.

Chromeleon software functionality accessible via the SDK

Logon support	<ul style="list-style-type: none">• Including silent logon
Object selection	<ul style="list-style-type: none">• Built-in object browser• User Interface allows user to select items from the Data Vault
Sequence creation	<ul style="list-style-type: none">• Via method templates, eWorkflow™ procedures, manual creation and injection query• Read/write sequence properties, including custom variables• Add/remove injections
Data acquisition	<ul style="list-style-type: none">• Start, monitor and manage sequence data acquisition and run queues
Instrument monitoring	<ul style="list-style-type: none">• Iterate through list of configured instruments• Check instrument status• Read instrument configuration• Read online instrument values
Injection handling	<ul style="list-style-type: none">• Read/write injection properties• Read/write custom variables
Instrument method management	<ul style="list-style-type: none">• Copy/move existing instrument methods• Read/write instrument method elements (directly edit method script)
Processing method management	<ul style="list-style-type: none">• Copy/move existing processing methods• Read processing method elements (limited)• Read component properties• Add/remove concentration levels• Read/write custom variables
Data access	<ul style="list-style-type: none">• Access raw data (20, DAD, MS, audit trails)• Access results (e.g., peak area)
Reporting and import/export	<ul style="list-style-type: none">• Trigger import/export of sequences and results• Modification of print/export conditions

If you are building your own environment to manage data from several software repositories, let us help you gather the information you need from Chromeleon CDS with our SDK licensing, tools and comprehensive certification program.

Stage 5



If you're searching for an integrated solution, Thermo Scientific™ SampleManager™ LIMS can connect directly with Chromeleon CDS and co-exist in virtual or cloud hosted environments in a larger software universe.

If you're looking for a larger lab management system, discover the Thermo Fisher Connect™ Platform which orchestrates lab connectivity at a higher level to include laboratory notebook, compiled data analytics, inventory management, asset management, and expanded data collection and archival across peripheral instrumentation.



Leading the cloud-native technology initiative from Thermo Fisher, the Thermo Scientific™ Ardia™ Platform enables the collection of data from chromatography and mass spectrometry instruments directly to a web-accessible platform that provides secure, centralized data storage to enable seamless collaboration between scientists. The Ardia platform can be deployed both as on-premise solution and fully cloud-based, letting scientists share previously siloed data, simplifying analyses and unlocking deeper insights.

Stage 5



Wider connectivity between Chromeleon CDS and a larger software universe is achievable.

- Read more about how to connect instruments and software in [Built for Connectivity](#)
- Understand the requirements for [Chromeleon SDK Specifications](#)



Expanding software with the help of Thermo Scientific Software packages offers direct connectivity.

- Find out about our [Sample Manager LIMS](#) and Chromeleon CDS software link
- Learn points to consider when looking at a LIMS system from [A complete guide to LIMS Selection](#)
- Find out how to use the Connect Platform, Team edition for [Making lab life easier](#)



Cloud native is different, learn how.

- Discover some of the features and benefits realized by the [Ardia Platform](#) and Get closer to the truth
- Read about some thoughts on digital transformation in [Laboratory digital transformation: An IT perspective](#).

Conclusion

System administration is challenging and pulling pieces of various software together can be like managing a jigsaw puzzle.

Regardless of which sections of your puzzle you want to work on, Thermo Fisher Scientific can support your quest to slim down your hands-on responsibilities, reduce the risk to your data integrity, and help you move your digital transformation forward with our resources, support teams, and cutting-edge product line.



General resources



Chromeleon CDS

Enable your laboratory with a product built for efficiency, assurance, and compliance while still offering system administrators simplicity, flexibility, and reliance.

[Learn more](#)



SampleManager LIMS

To discover more about how to drive lab productivity and ensure compliance, learn about our LIMS solution.

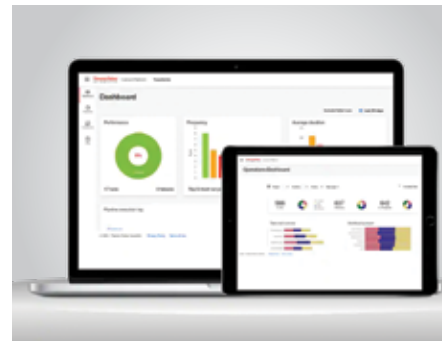
[Learn more](#)



Built for IT

Bridge the gap between IT standardization and lab operation with a solution built for administrators, users, and managers.

[Learn more](#)



Connect platform

To see true orchestration and connectivity across your scientific ecosystem, explore our Connect Platform.

[Learn more](#)



Chromeleon university

Navigate a library of applications, videos, technical notes, and more in our centralized university.

[Learn more](#)



Ardia platform

See how cloud-native is different and connect people, instruments, and research at a global level with no file-size restrictions on the Ardia platform.

[Learn more](#)

Built for connectivity.
Built for collaboration.

Across the lab and enterprise



Chromeleon Chromatography Data System



Learn more at thermofisher.com/chromeleon

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