SAS Life Science Analytics Framework – Going Beyond The Clinical Reporting

PhUSE Single Day Event – Frankfurt (15th May 2018)

LSAF – Quick Recap

The SAS Platform

Going Beyond Clinical Reporting

From Coding To Communications

- Collaboration
- Flexible Framework
- Visualizations & Explorations

Conclusion

SAS Life Science Analytics Framework

Quick Recap

SAS Vision

Industry Requirements

INTEGRATED ENVIRONMENT

- Manage, review, analyze and report (clinical) research information in ONE analytical environment.
- Repository provides seamless integration with SAS/R development and execution environment as well as standards and study metadata

DATA INTEGRITY

- Reproducibility of analysis at any moment in time
- Full traceability & transparency
- Combine clinical trial data and real world data (cohort) as part of your clinical trial analysis

COLLABORATION

- Direct access to research content, clearly organized and searchable
- Internal and external stakeholders (geographically remote)
- Flexibility on CRO activities while ensuring quality oversight
- Automation & guidance

OPEN AND FLEXIBLE FRAMEWORK

- Data Mining and Machine Learning capabilities
- Ability to run different languages (E.g. SAS, R, Python)
- Ability to integrate with other applications (E.g. Pinnacle21, JReview, Document Management Systems, etc.)
- Ability to extend COTS application

REGULATORY COMPLAINCE

- Controlled GxP validated environment,complete audit history
- Robust version control managing the change history of all files, electronic signature
- Adherence to CDISC Standards

VISUALIZATIONS & EXPLORATIONS

- Direct integration with visualization capabilities facilitating review and analysis by Clinical / Medical Team

SAS Approach

Key Concepts

Build for purpose

- 21CFRPart11 compliance
- Analysis and regulatory controls
- Workflows and data standards
- Integrated interactive and batch statistical computing environment (SCE)

File Based Repository

- Flexibility
- Performance

Web-based

- Lowers customer validation (only acceptance testing)
- Thin client

Hosted solution

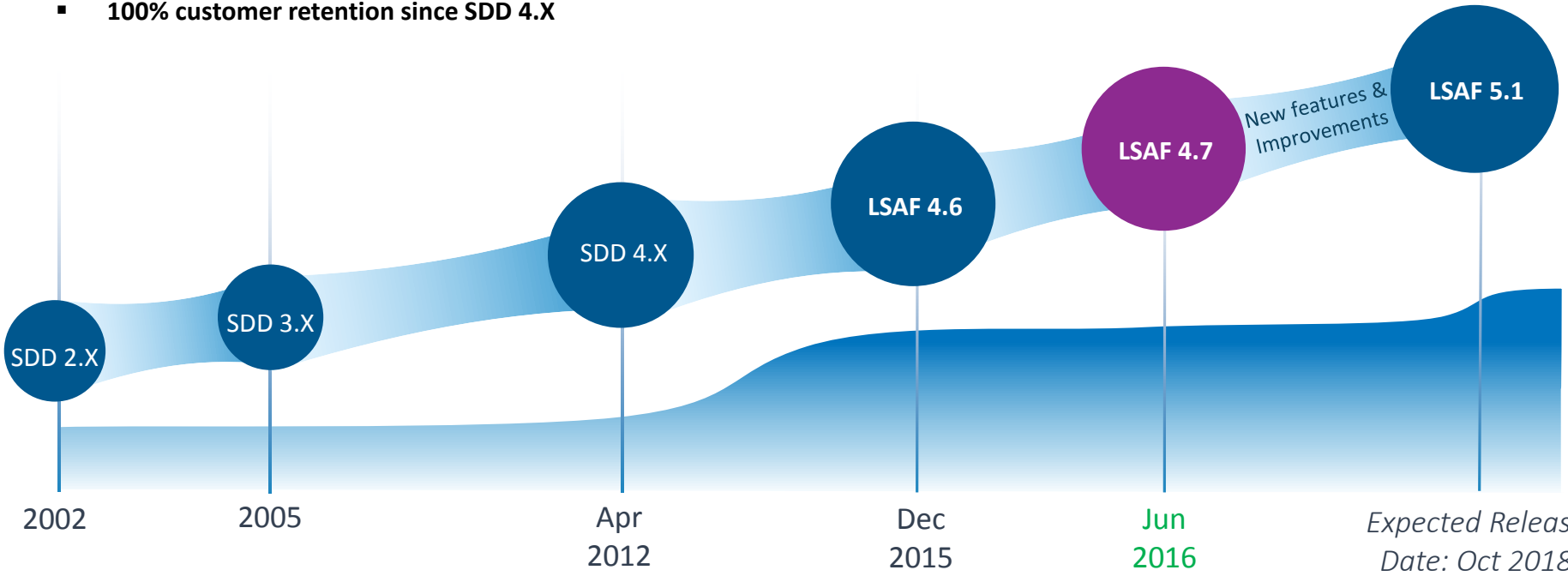
- Faster time to implement, consistent Implementation and best practices
- Easier maintenance
- Cost effective
- Scalability

SAS Support (24/7)

SAS Life Science Analytics Framework

Timeline

- **+ 15 years of R&D roadmap**
  - Stability & increase of functionalities
- **100% customer retention since SDD 4.X**



SAS Life Science Analytics Framework

From Coding To Communications

The SAS Platform

Communication

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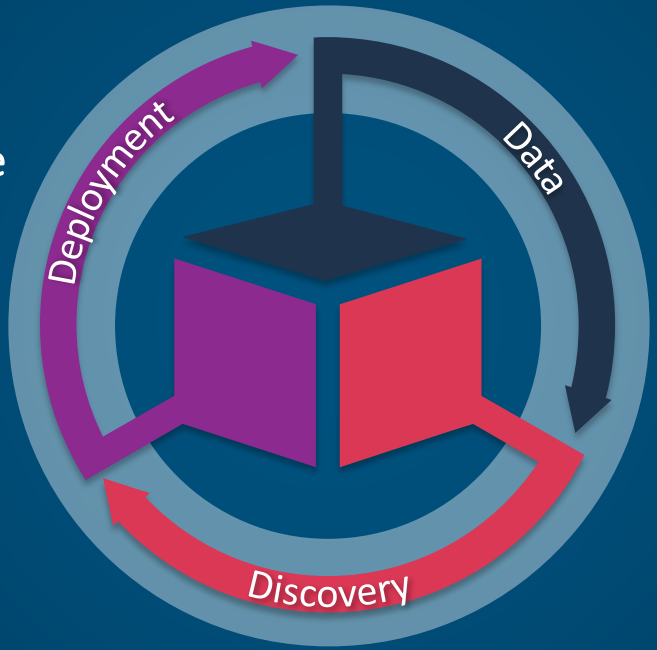
SAS Life Science Analytics Framework

The SAS Platform

The SAS Platform

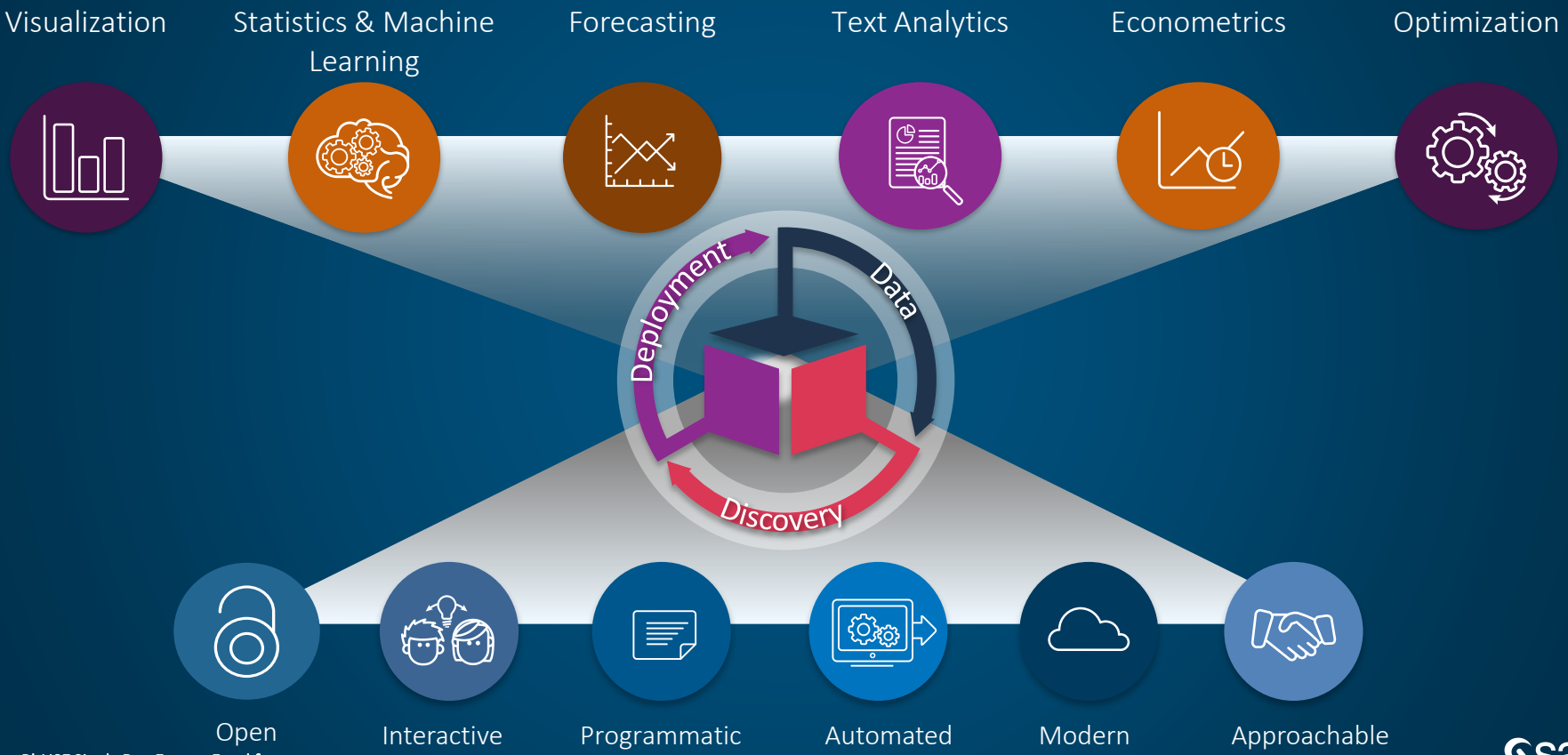
Are you able to make decisions based on trusted analytic insight?



Are you spending too much time preparing your data?

Do your tools support a culture of learning, discovery & innovation?

SAS Provides a Unified Environment



The SAS Platform

Modern and Open for all users

Consistent Visual Interfaces

Programming Interfaces

API Interfaces

REST API

CITIZEN DATA SCIENTIST

DATA SCIENTIST

DEVELOPER

The SAS Platform

Modern and Open for all users

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STATISTICIAN

PHYSICIAN

SUBJECT EXPERT

SAS Life Science Analytics Framework

Going Beyond The Clinical Reporting

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SAS Vision

Core Capabilities

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SAS Life Science Analytics Framework

From Coding To Communications : Collaboration

SAS Life Science Analytics Framework

Communication Through Collaboration

Internal Only
(No External Organizations Are Involved)

Deliverable Based
(Receiving Information From External Organizations)

Collaboration
(Sending And Receiving Information)

COLLABORATION

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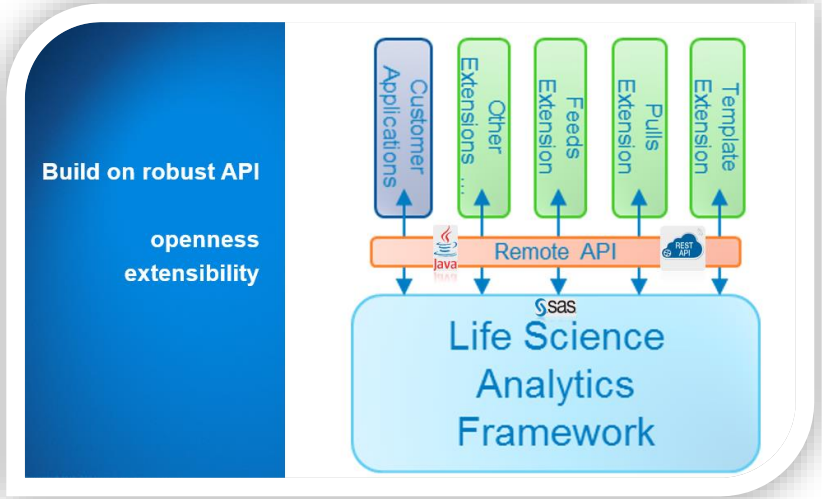
SAS Life Science Analytics Framework

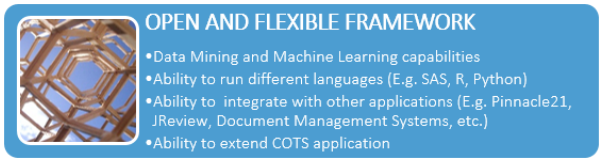
From Coding To Communications : Flexible Framework

SAS Life Science Analytics Framework

Communication Through Information Flow



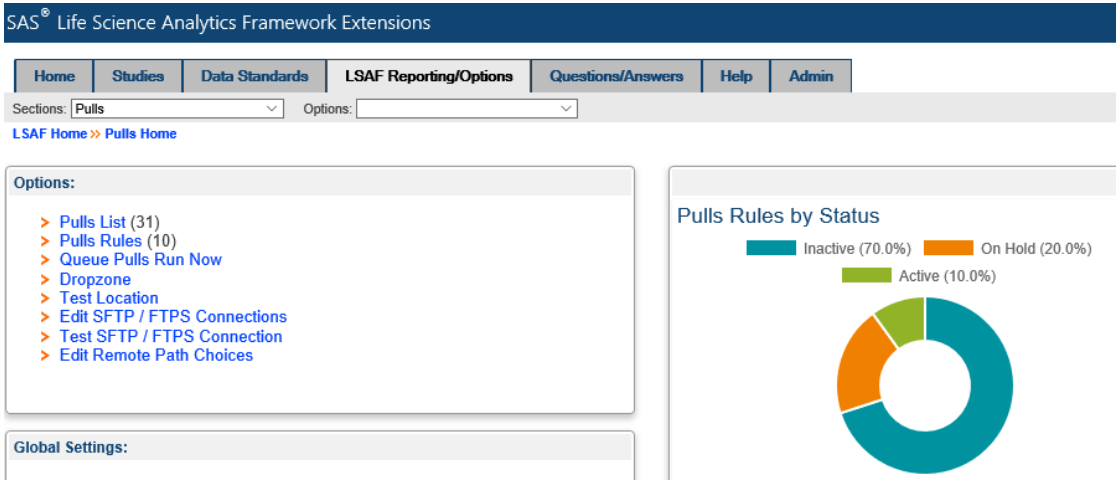
- **Extendable Framework to grow together with customer**
  - High Performance JAVA and SAS Macro API
  - Automation through available LSAF 'Add-On' Modules using API's

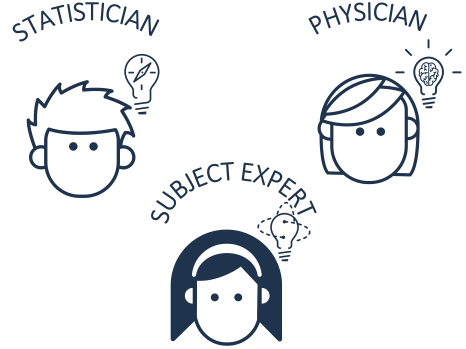


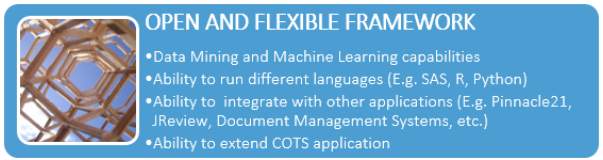
LSAF Add-On's

Communication Through Information Flow : Pulls

- **PULLS:** Continuously synchronize remote content into repository locations.
- *Example:* Data Provider will deliver files to the customer, often daily or multiple times a day. This module will automate the pull of that content into repository folder locations E.g. Central Lab Provider.



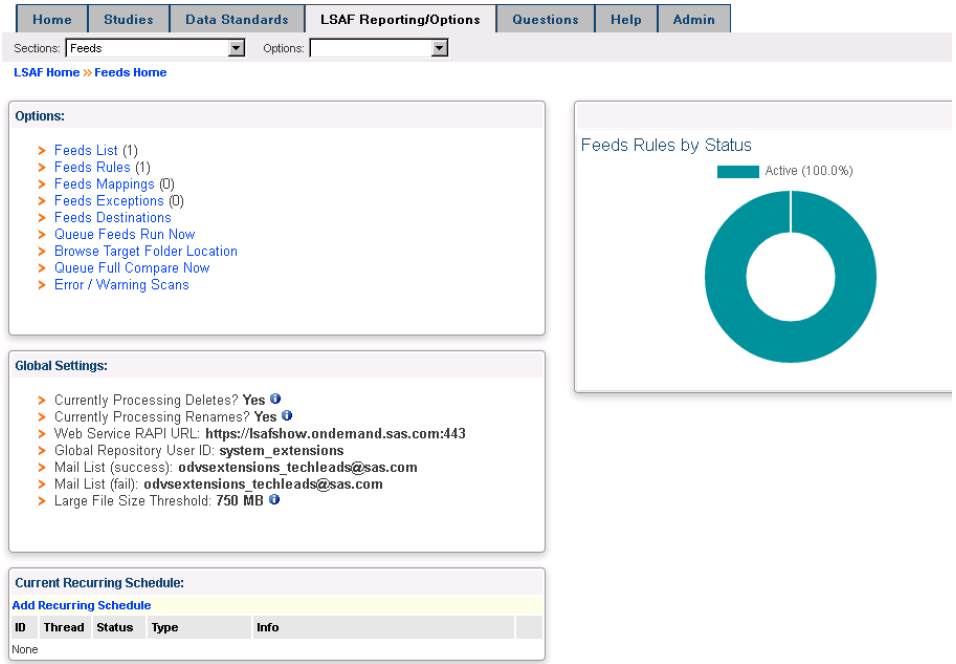


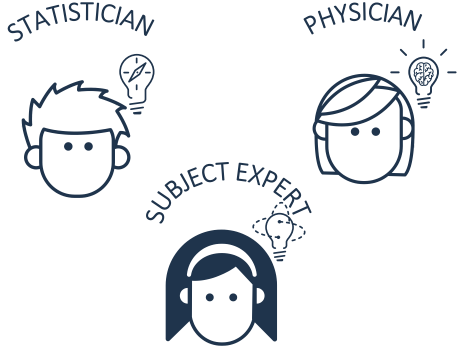


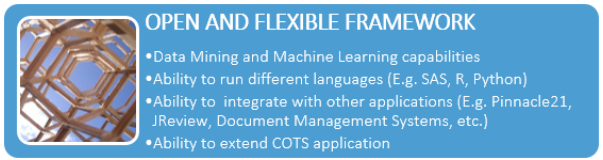
LSAF Add-On's

Communication Through Information Flow : Feeds

- **FEEDS:** Continuously synchronize changes in LSAF (add/update/delete/rename) to remote locations.

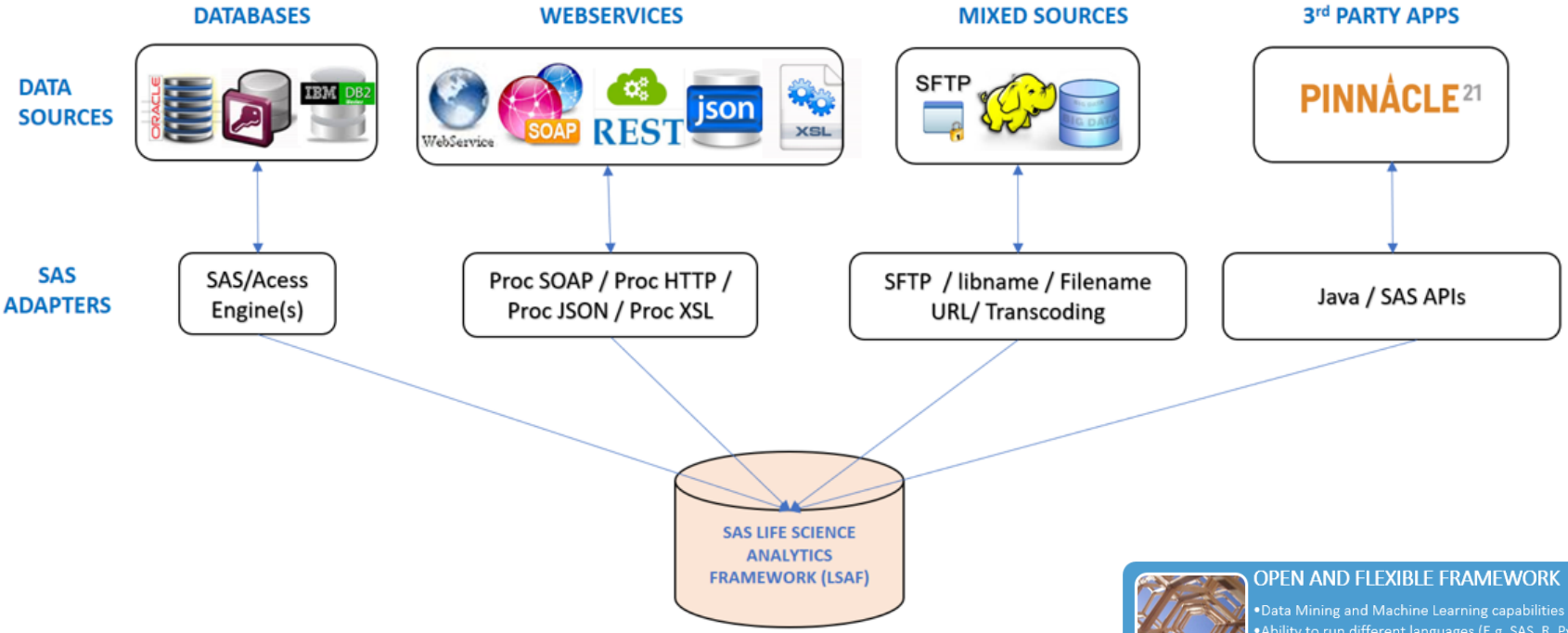






Integrations

Communication Through Information Flow



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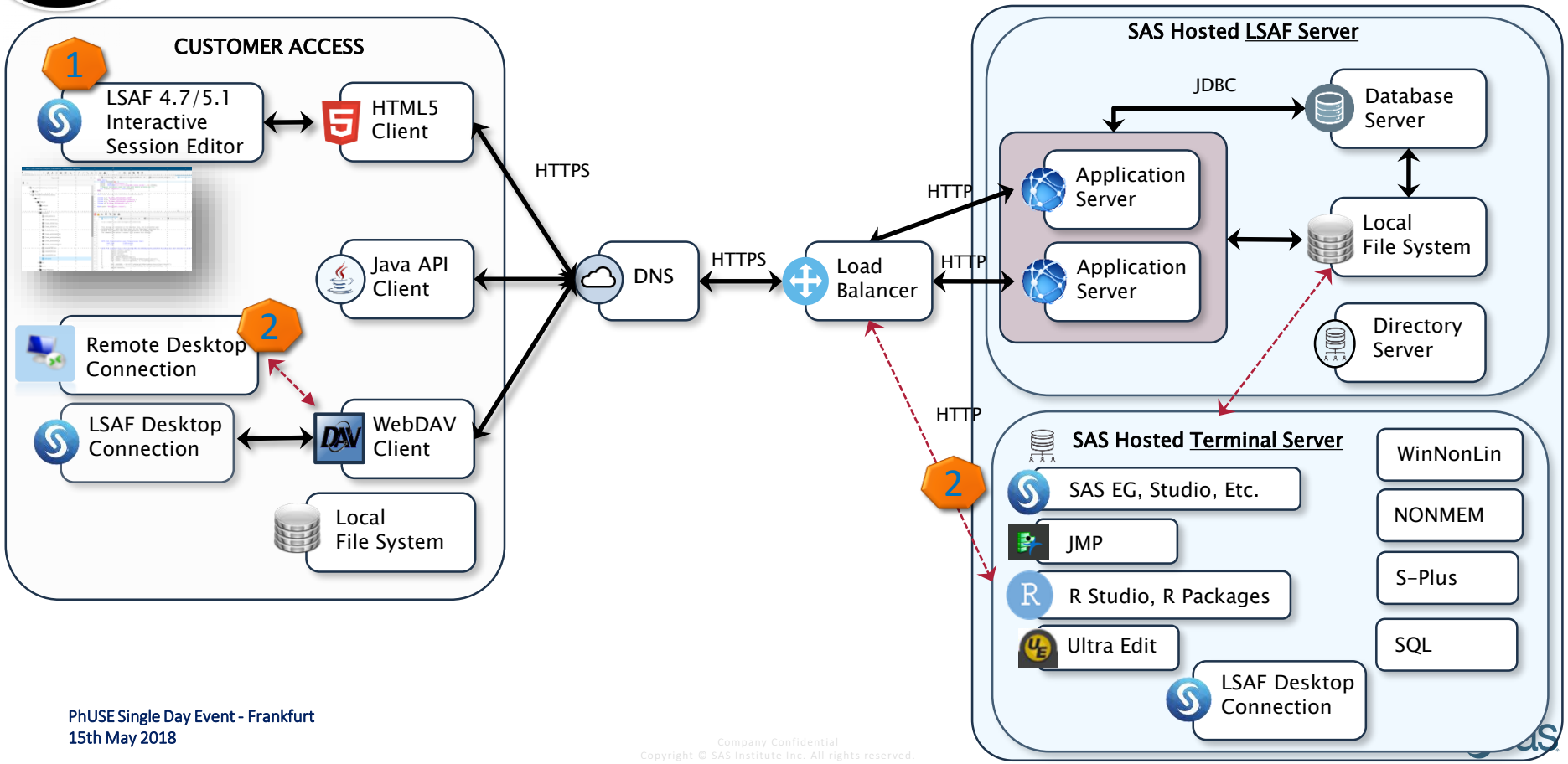
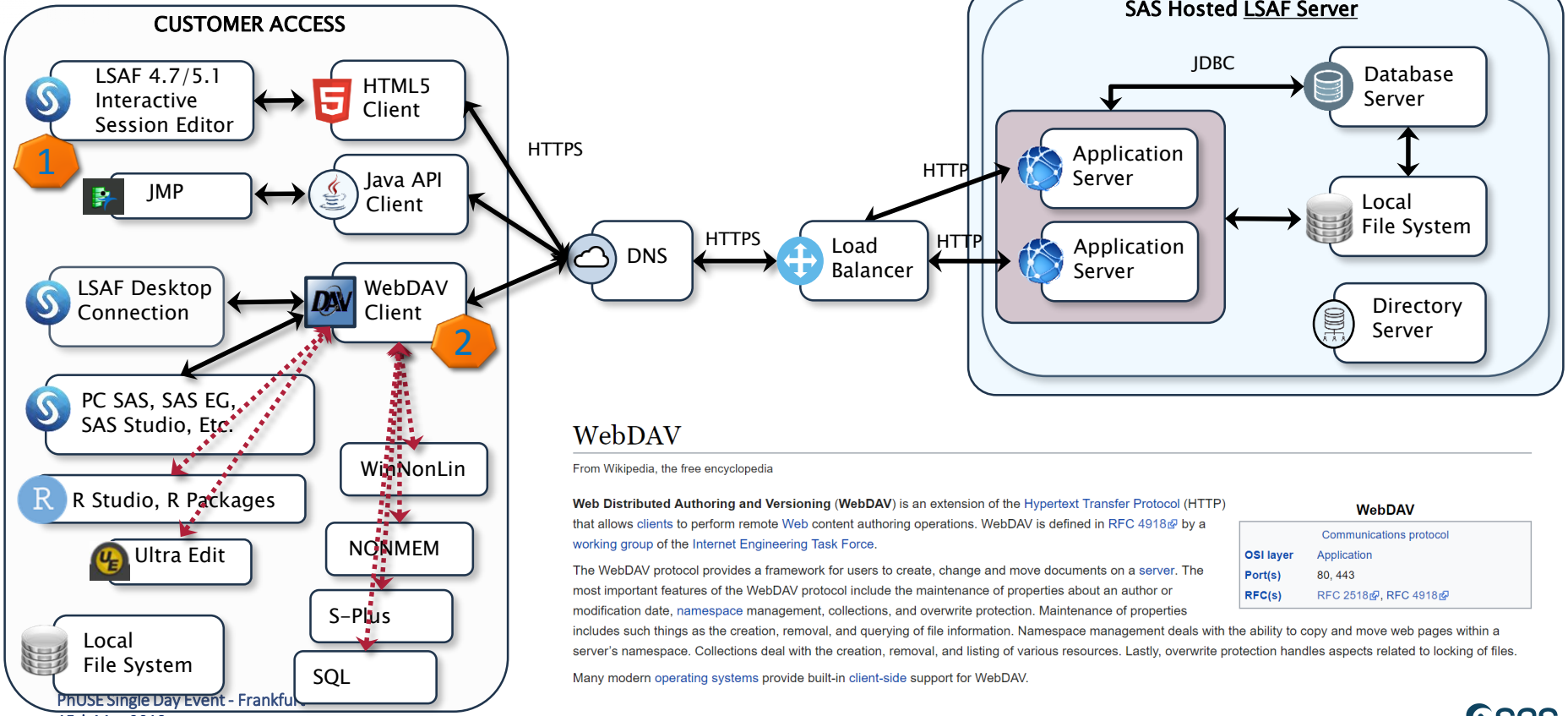
Development Environment Options

Terminal Server



Development Environment Options

WebDAV



WebDAV

From Wikipedia, the free encyclopedia

Web Distributed Authoring and Versioning (**WebDAV**) is an extension of the Hypertext Transfer Protocol (HTTP) that allows clients to perform remote Web content authoring operations. WebDAV is defined in RFC 4918 by a working group of the Internet Engineering Task Force.

The WebDAV protocol provides a framework for users to create, change and move documents on a server. The most important features of the WebDAV protocol include the maintenance of properties about an author or modification date, namespace management, collections, and overwrite protection. Maintenance of properties includes such things as the creation, removal, and querying of file information. Namespace management deals with the ability to copy and move web pages within a server's namespace. Collections deal with the creation, removal, and listing of various resources. Lastly, overwrite protection handles aspects related to locking of files.

Many modern operating systems provide built-in client-side support for WebDAV.

WebDAV

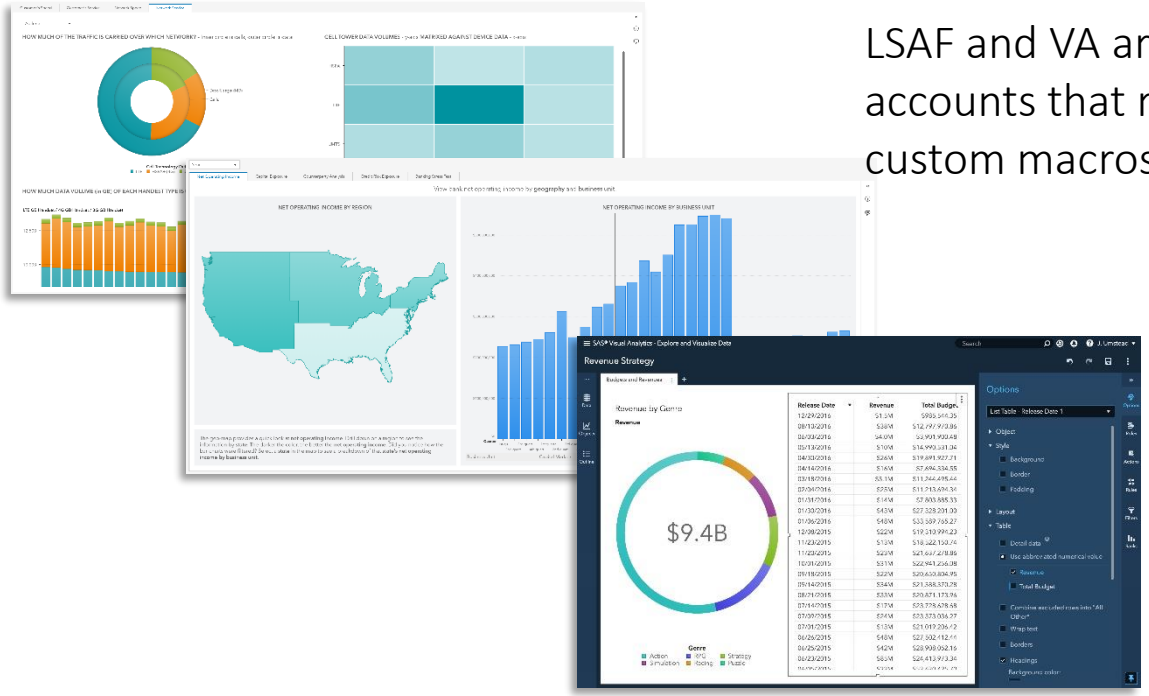
Communications protocol	
OSI layer	Application
Port(s)	80, 443
RFC(s)	RFC 2518, RFC 4918

SAS Life Science Analytics Framework

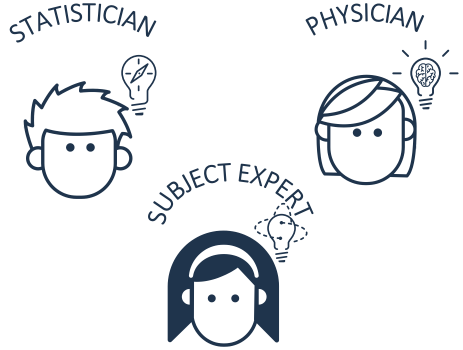
From Coding To Communications : Visualizations & Explorations

SAS Life Science Analytics Framework

Communication Through Visualization & Explorations



LSAF and VA are integrated through a system of accounts that represent studies powered by custom macros



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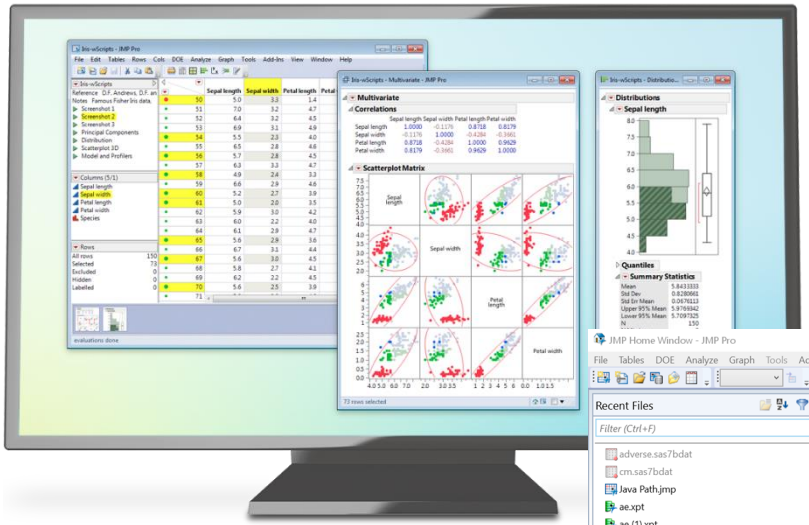
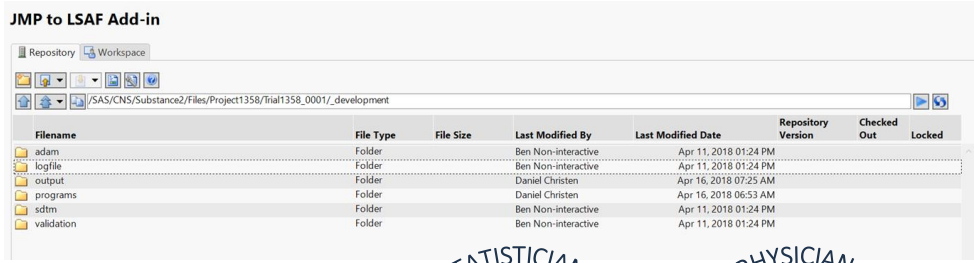
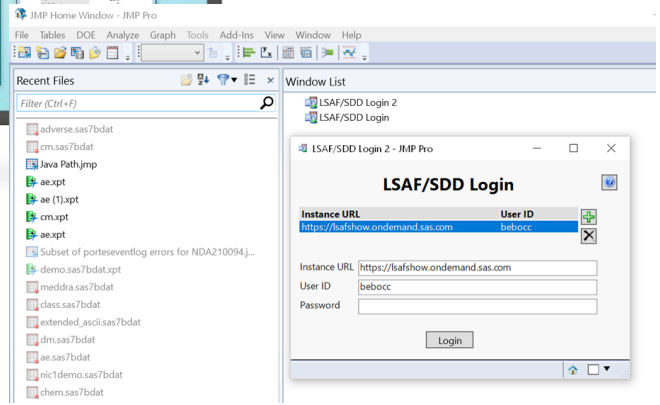
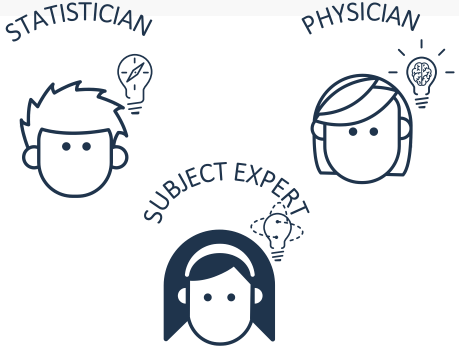
Communication Through Visualization & Explorations









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