ASK THE EXPERT

Get Started: Using CAS Programming Language for Distributed Computing in the SAS® Viya® Platform

Peter Styliadis
Senior Technical Training Consultant

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Peter Styliadis is on a team that focuses on course development and customer training in all aspects of the analytics life cycle. Currently, he spends his time processing, analyzing and visualizing data using a variety of tools and programming languages such as Base SAS, Python, Structured Query Language (SQL) and SAS Visual Analytics. He also dedicates a lot of time to programming in the massively parallel processing environment in SAS Viya using SAS, Python and the CAS language.

Ask the Expert

Using CAS Programming Language (CASL) for Distributed Computing in the SAS® Viya® Platform

Peter.Styliadis@sas.com

Sr Technical Training Consultant

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Target Audience

SAS Programmer

Many More!

SAS Drive

SAS Studio

SAS Environment Manager

SAS Visual Analytics

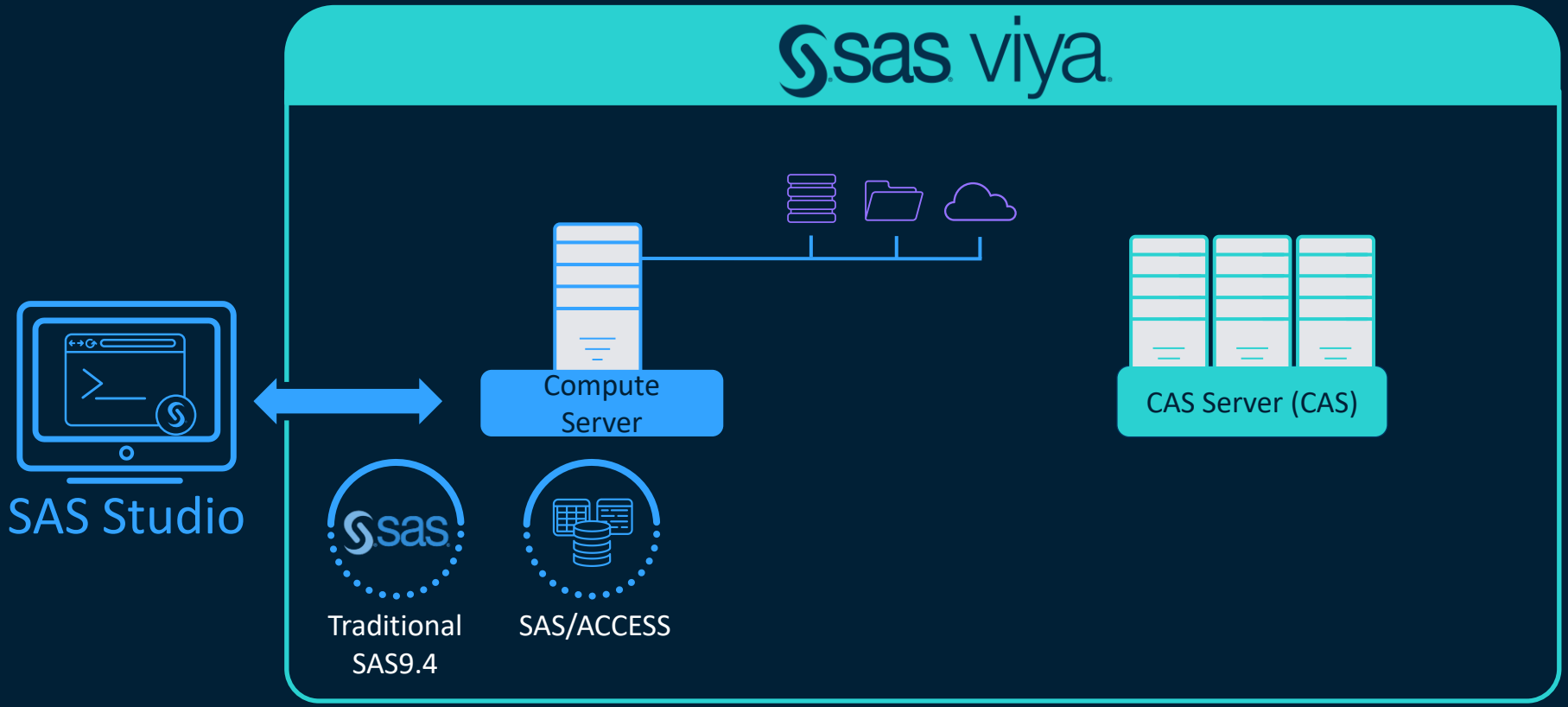
SAS Model Manager

SAS Data Studio

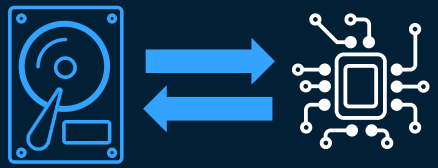
SAS Visual Forecasting

SAS Visual Data Mining and Machine Learning

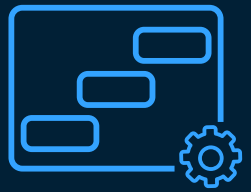
SAS Visual Statistics


sas viya
SAS Studio
Compute Server
CAS Server (CAS)
Traditional SAS9.4
SAS/ACCESS

SAS Compute Server Processing

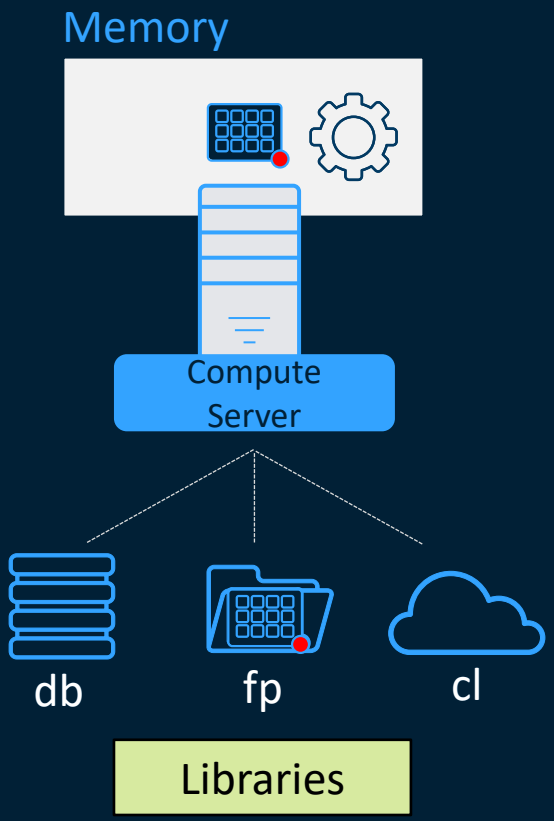


Data ***transfer*** from disk to memory



DATA STEP is ***single-threaded***

Many PROCS are ***multi-threaded***

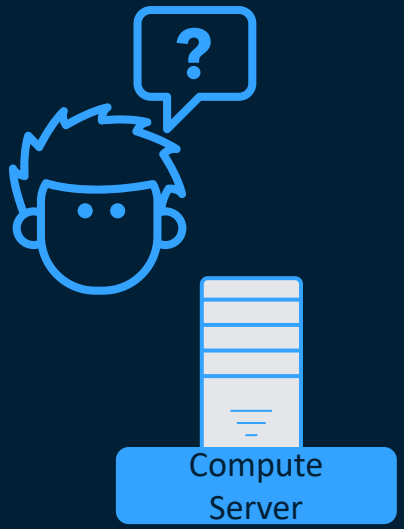


1
```
proc print data=fp.new;
run;
```

2
```
proc means data=fp.new;
run;
```

3
```
data fp.final;
    set fp.new;
run;
```

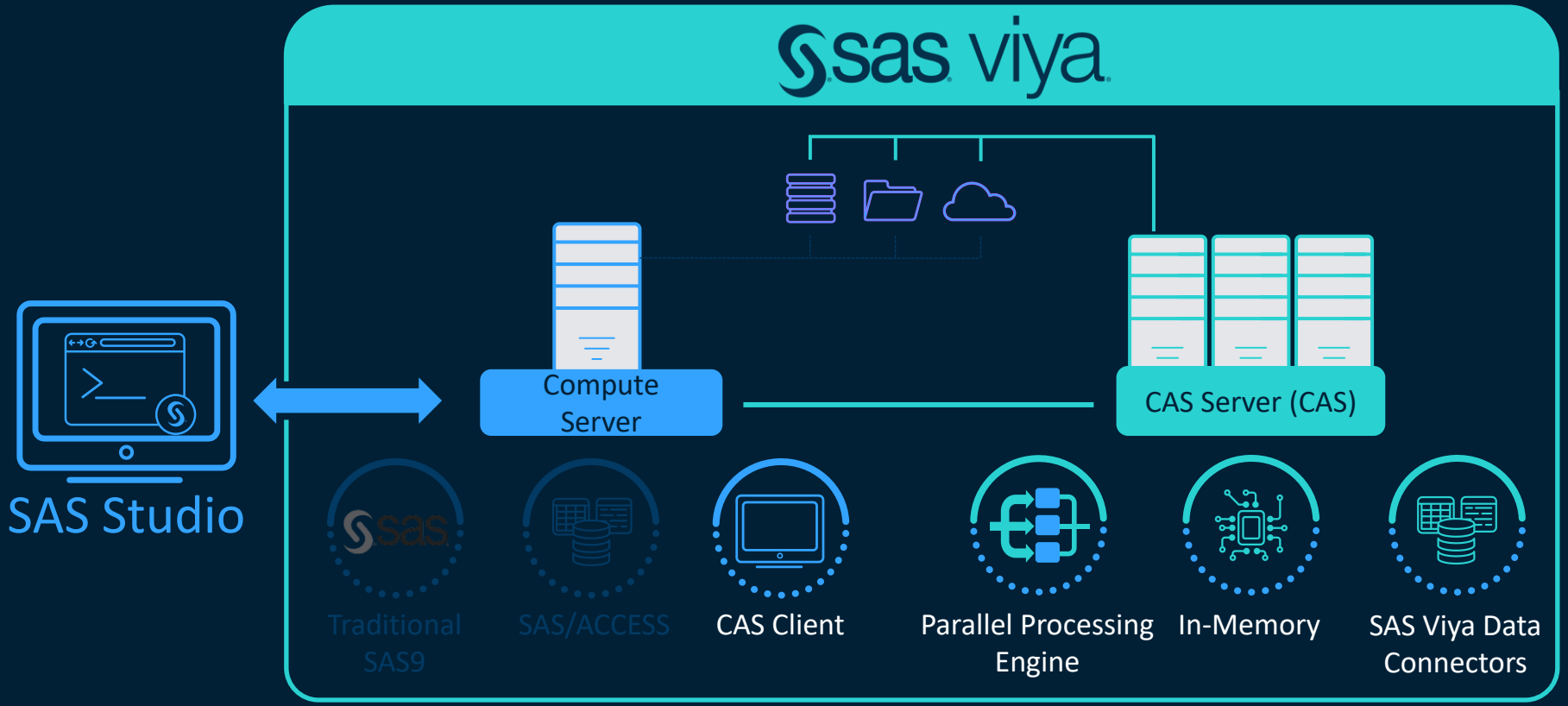
Loaded and unloaded data from memory ***3 times***

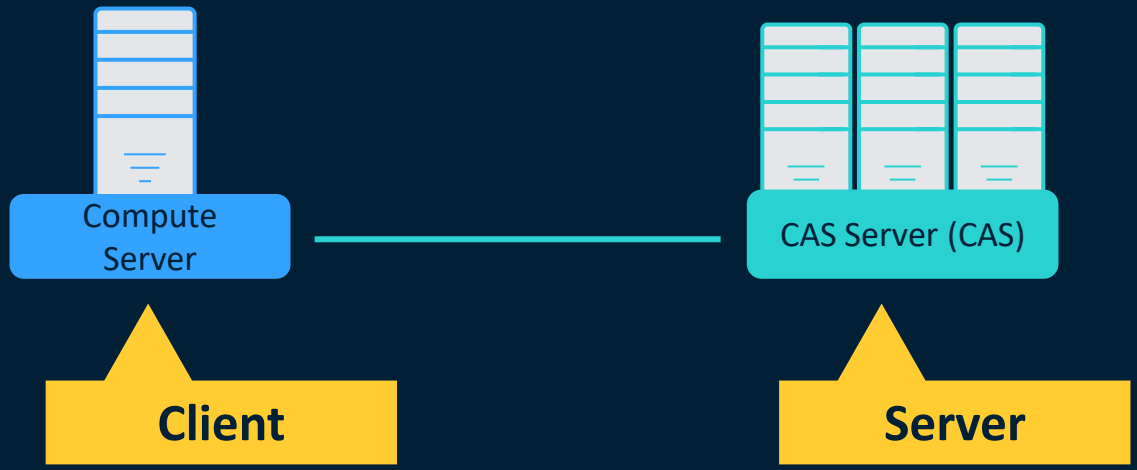


More computing resources?

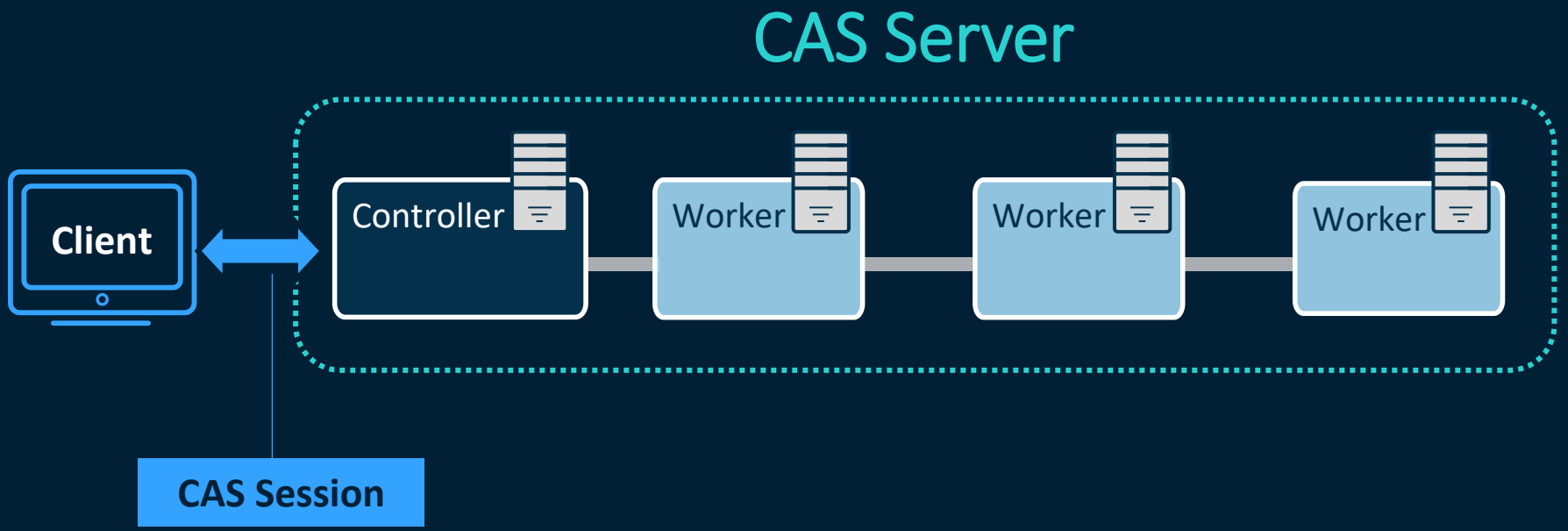
Additional analytical actions?

Other SAS Viya applications?

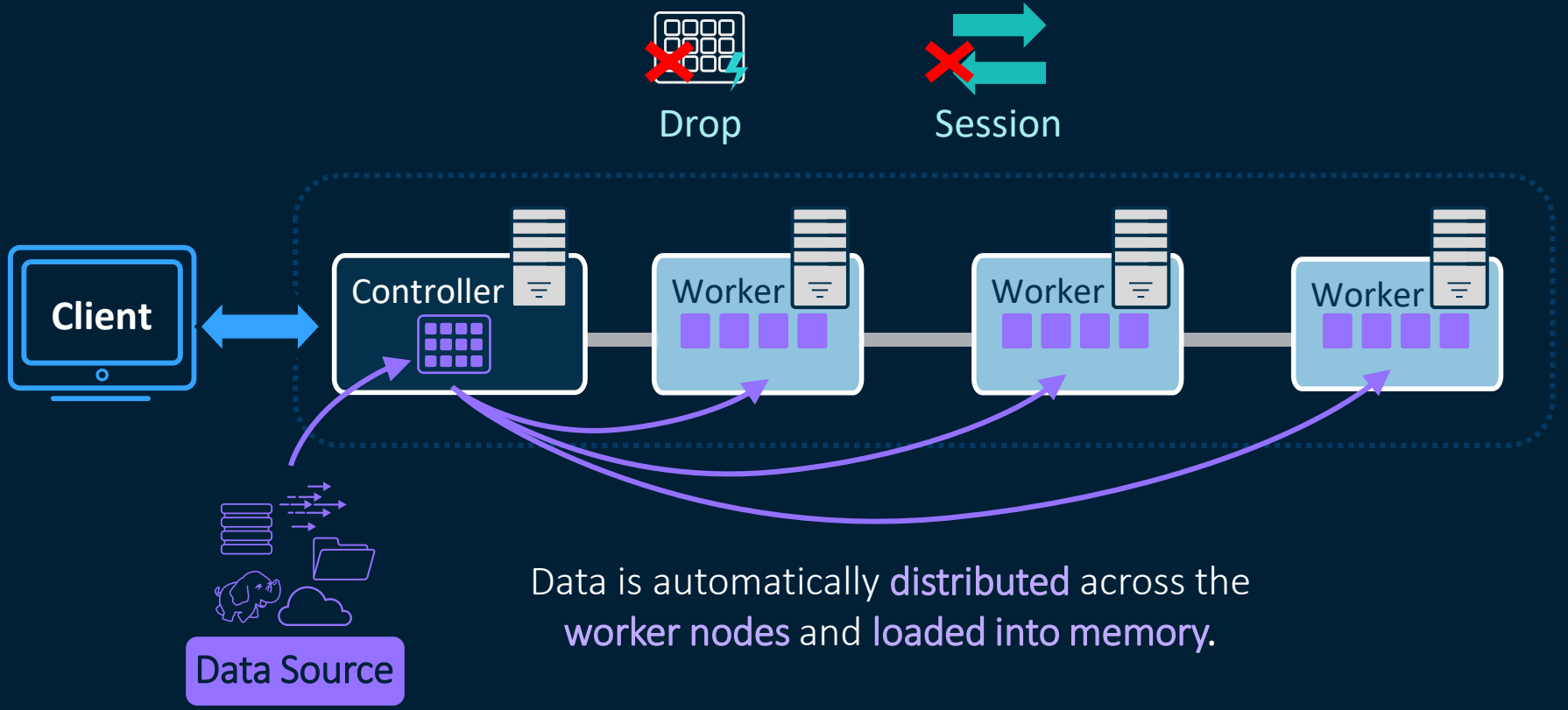

sas viya
SAS Studio
Compute Server
CAS Server (CAS)
Traditional SAS9
SAS/ACCESS
CAS Client
Parallel Processing Engine
In-Memory
SAS Viya Data Connectors


Compute Server
CAS Server (CAS)
Client
Server

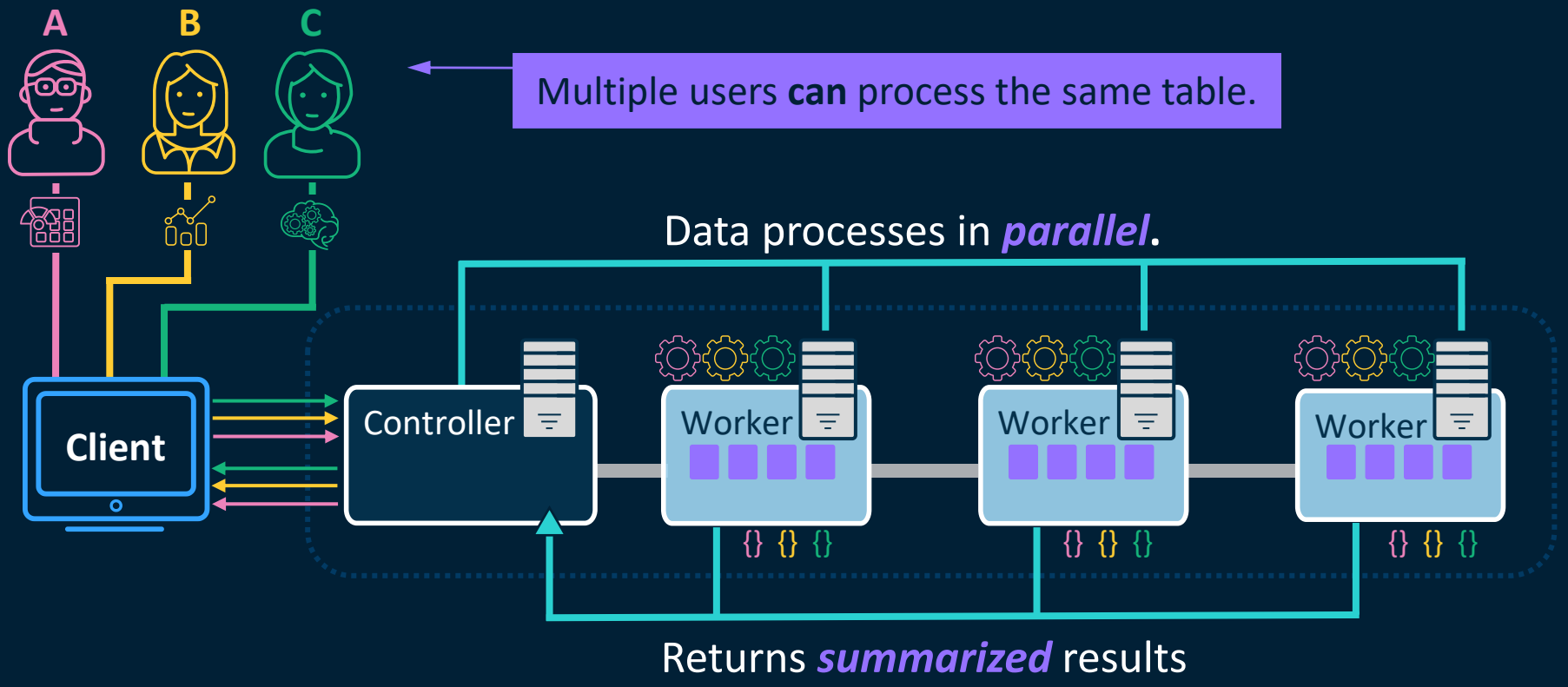
Cloud Analytic Services (CAS Server) in SAS Viya

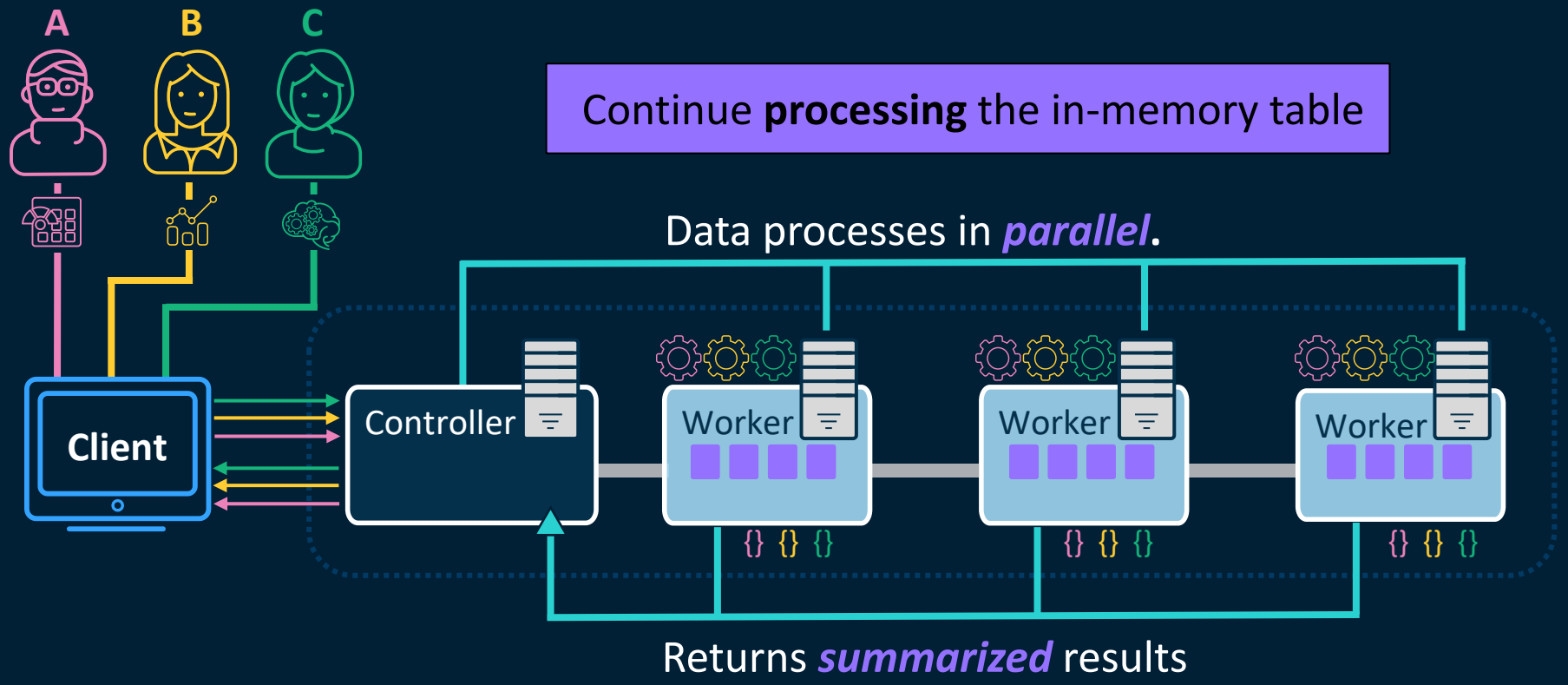


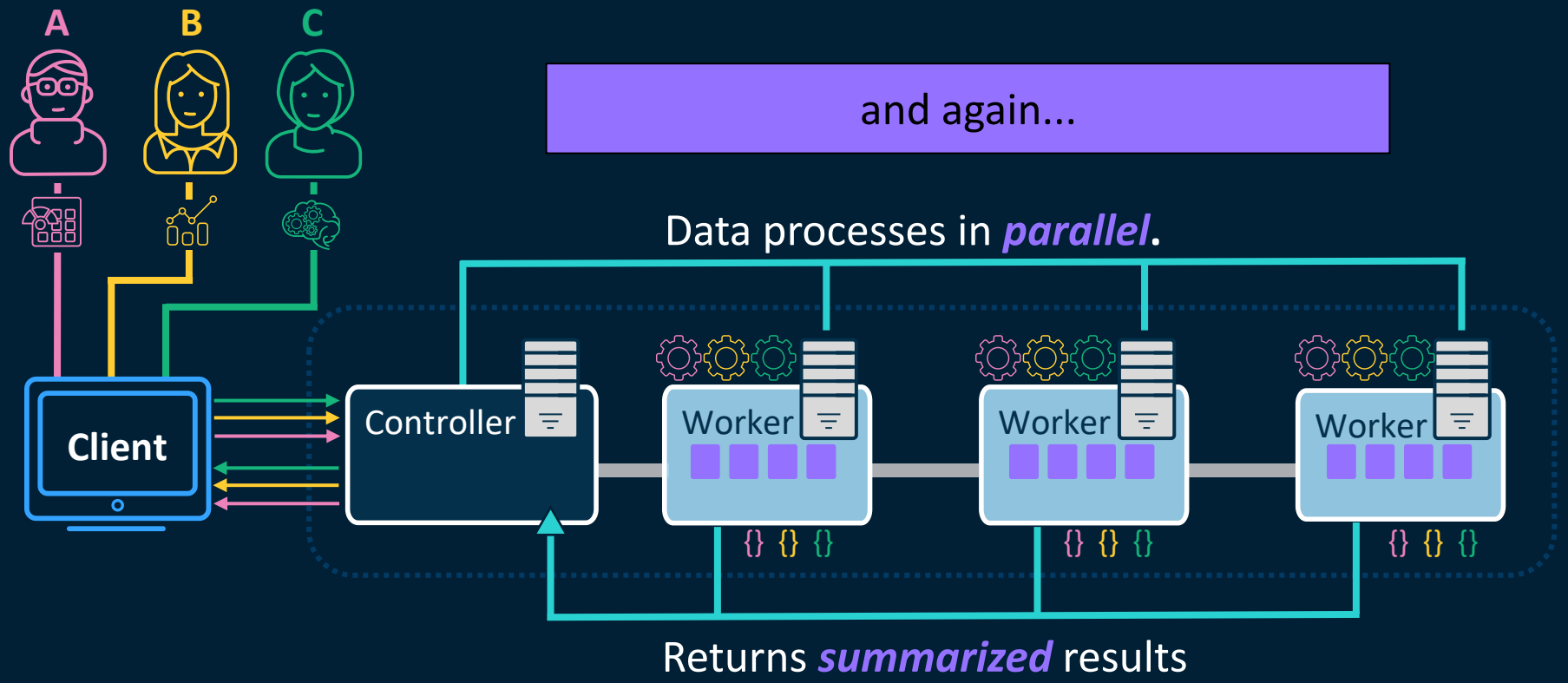
Data **persists** in memory.



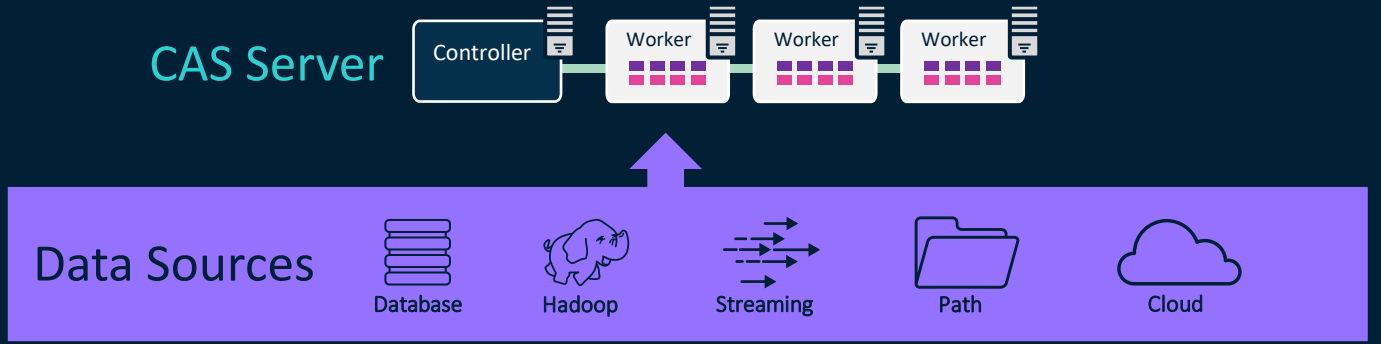
Data is automatically distributed across the worker nodes and loaded into memory.


A
B
C
Multiple users **can** process the same table.
Data processes in *parallel*.
Client
Controller
Worker
Worker
Worker
Returns *summarized* results

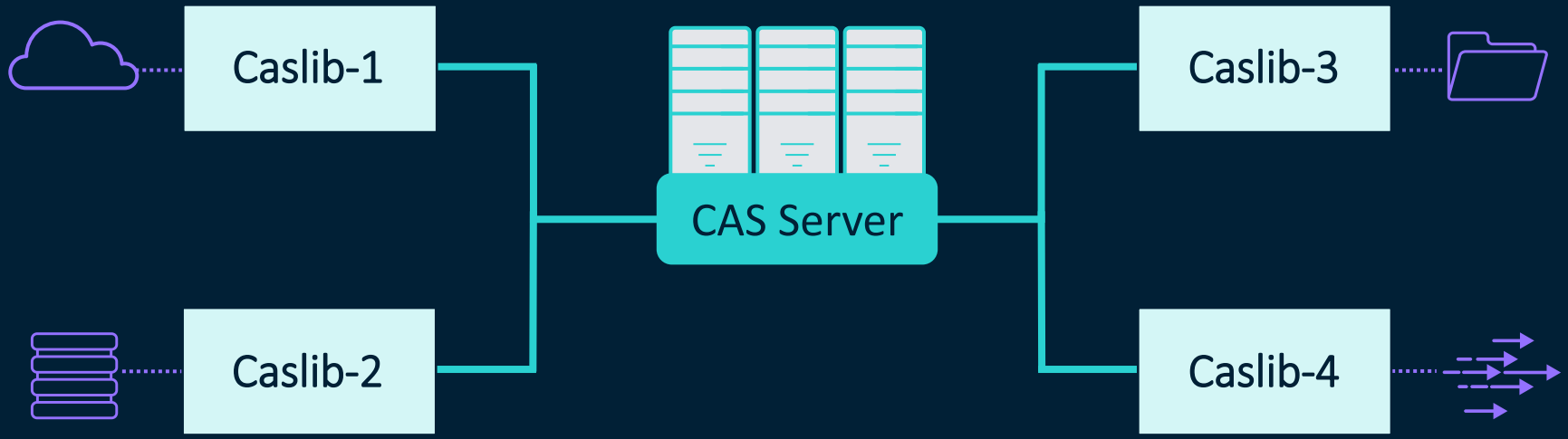

A
B
C
Continue **processing** the in-memory table
Data processes in *parallel*.
Client
Controller
Worker
Worker
Worker
Returns *summarized* results



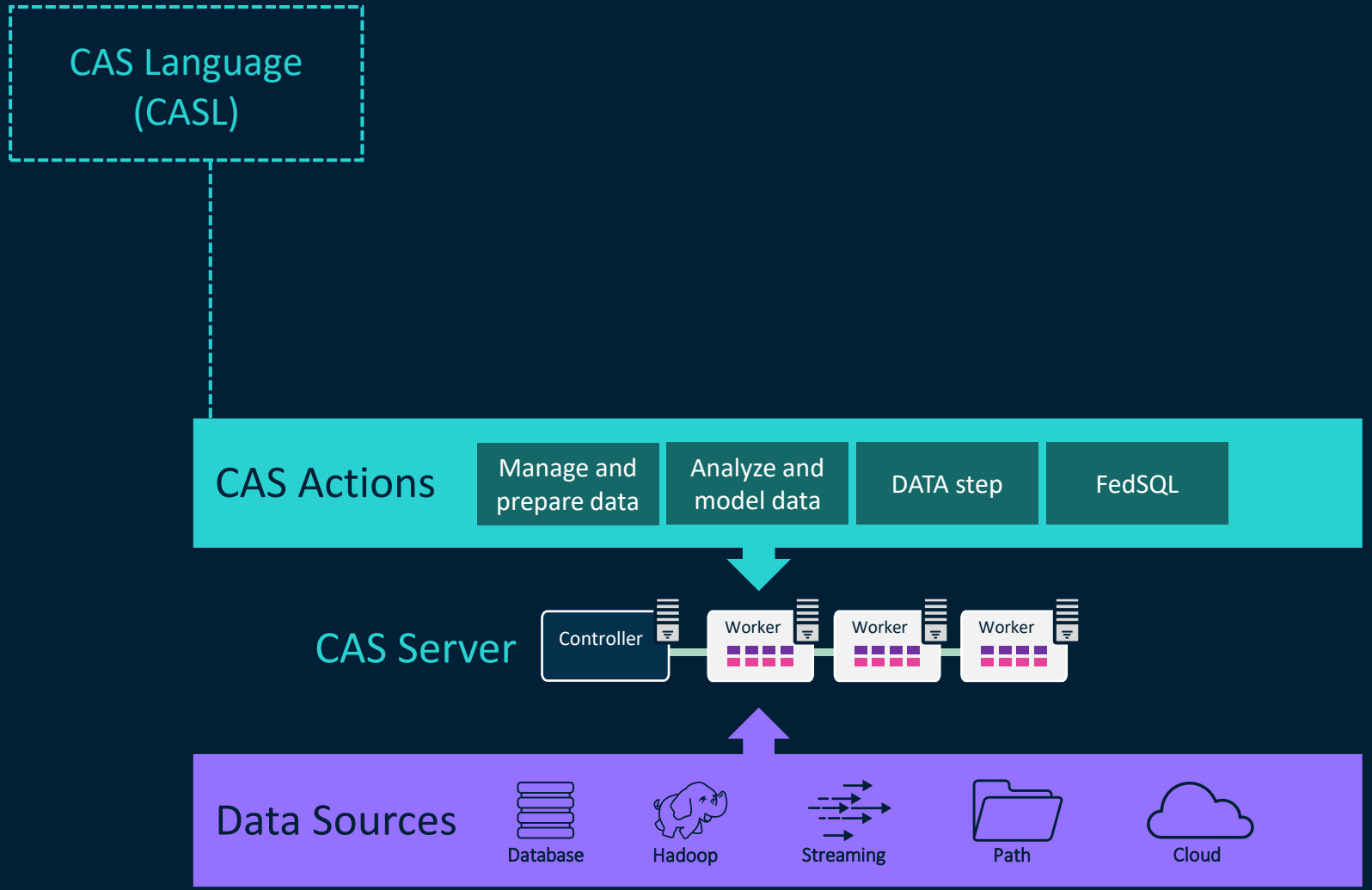
CAS **maximizes** parallel processing and **minimizes** disk I/O.


CAS Server
Controller
Worker
Worker
Worker
Data Sources
Database
Hadoop
Streaming
Path
Cloud

Caslibs provide a common interface into accessing different data sources in CAS.



A **Caslib** is to the **CAS server**, what a **library** is to the **Compute server**


CAS Language (CASL)
CAS Actions
Manage and prepare data
Analyze and model data
DATA step
FedSQL
CAS Server
Controller
Worker
Worker
Worker
Data Sources
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Hadoop
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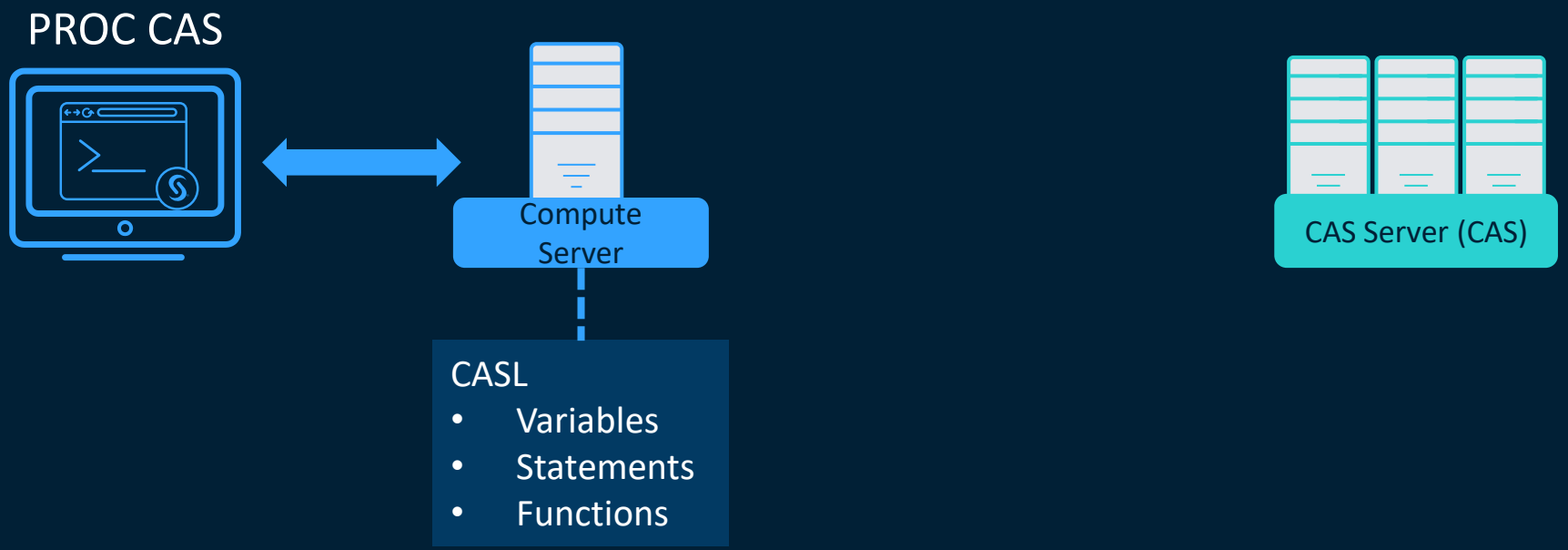
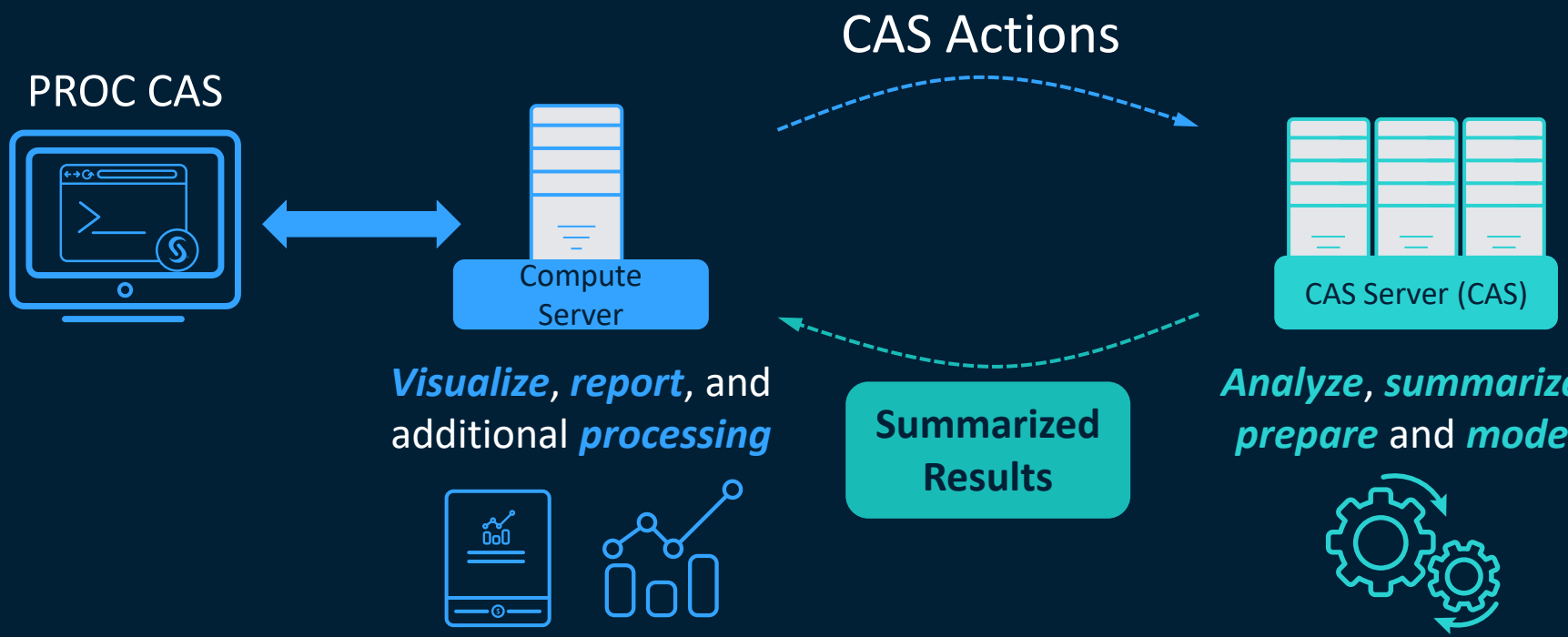
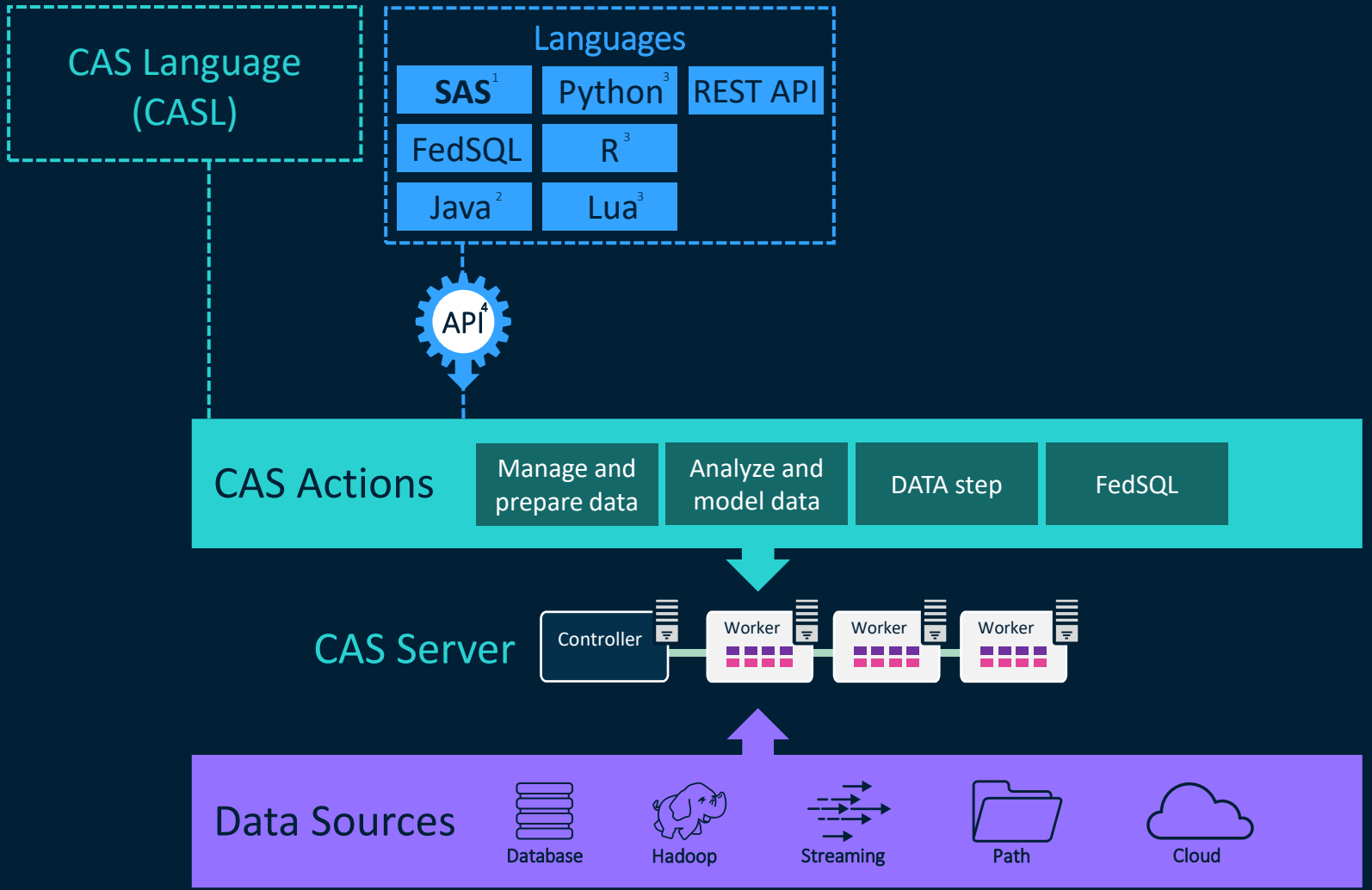
CASL programming components


PROC CAS
Compute Server
CAS Server (CAS)
CASL
• Variables
• Statements
• Functions


CAS Actions
PROC CAS
Compute Server
CAS Server (CAS)
Visualize, report, and additional processing
Summarized Results
Analyze, summarize, prepare and model


CAS Language (CASL)
Languages
SAS[1]
Python[3]
REST API
FedSQL
R[3]
Java[2]
Lua[3]
API[4]
CAS Actions
Manage and prepare data
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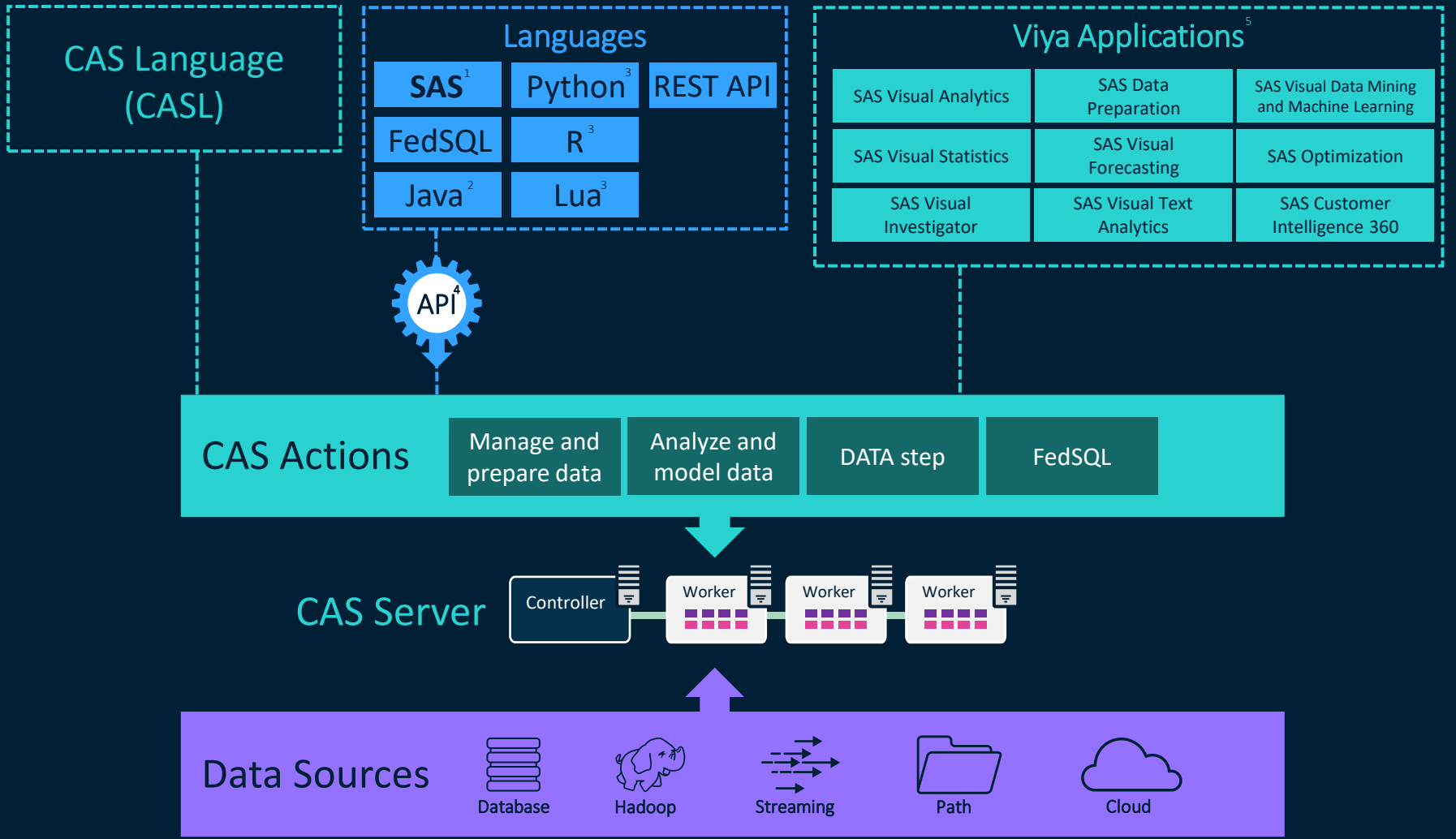
CAS Language (CASL)
Languages
SAS[1]
Python[3]
REST API
FedSQL
R[3]
Java[2]
Lua[3]
Viya Applications[5]
SAS Visual Analytics
SAS Data Preparation
SAS Visual Data Mining and Machine Learning
SAS Visual Statistics
SAS Visual Forecasting
SAS Optimization
SAS Visual Investigator
SAS Visual Text Analytics
SAS Customer Intelligence 360
API[4]
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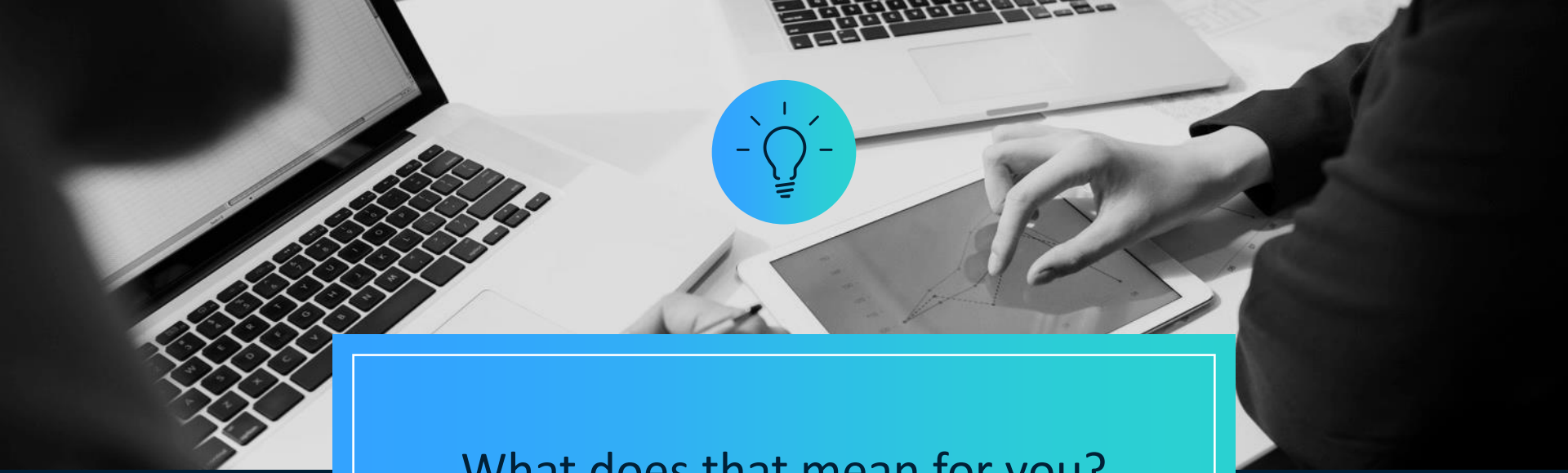

What does that mean for you?

Use the ***SAS compute server*** and ***CAS server*** as a team!

Thank you for attending!

Peter.Styliadis@sas.com

Sr Technical Training Consultant

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SAS Training

- Programming for SAS® Viya®
- SAS® Viya® and Python Integration Fundamentals
- High-Performance Data Processing with CASL in SAS® Viya®

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Questions?