SAS GLOBAL FORUM

Getting Started with Visual Analytics Administration and Deployment

Meera Venkataramani, Gary Mehler

SAS® VISUAL ANALYTICS

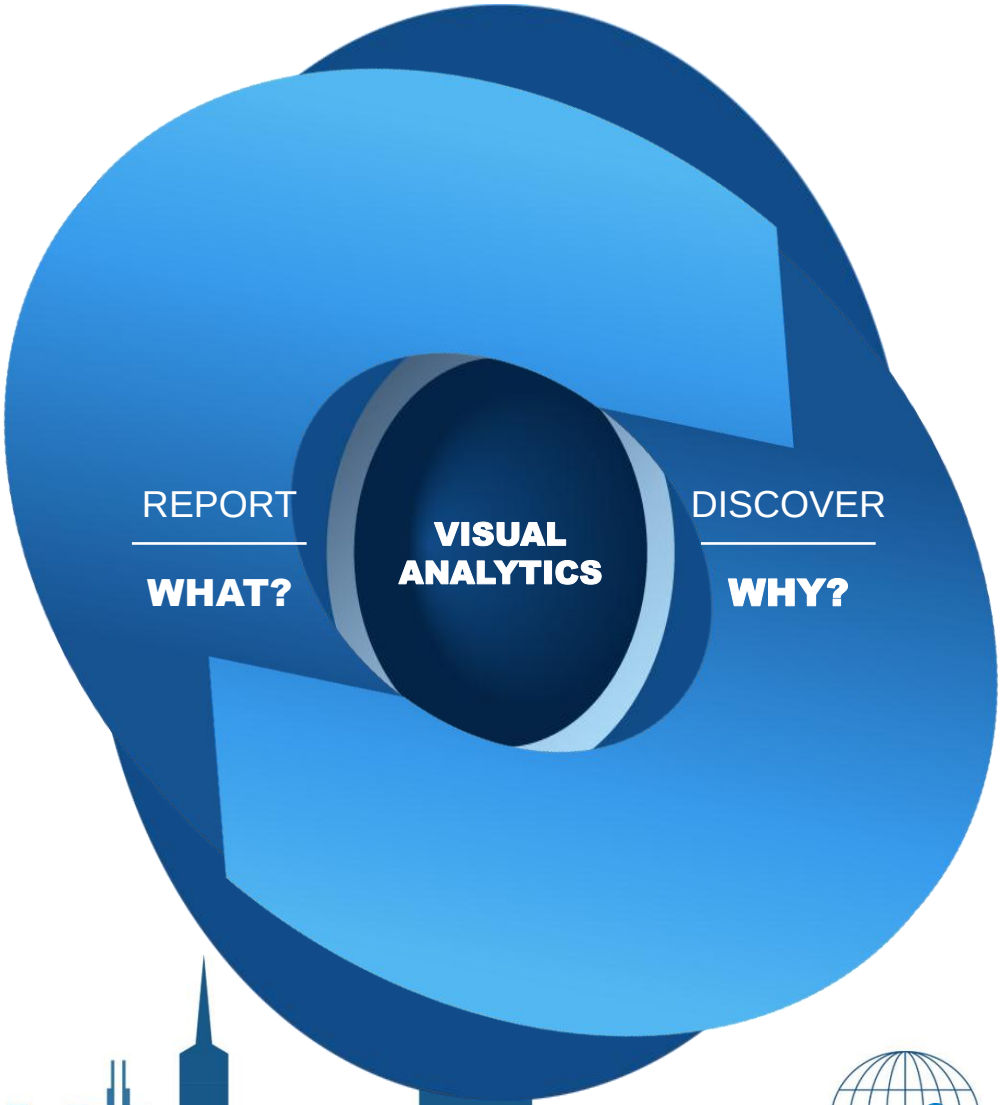
EXPLORE

DISCOVER

DESIGN

DELIVER

A SINGLE SOLUTION



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SAS® VISUAL ANALYTICS

DELIVERS A SINGLE SOLUTION FOR FASTER, SMARTER DECISIONS

Central Entry Point | Integration | Role-Based Views

PREPARE

- Manage data
- Load and join data
- Create calculated columns

EXPLORE

- Perform ad-hoc data exploration
- Insights generated through analytic visualizations

DESIGN

- Create dashboard style reports for web or mobile

DELIVER

- SAS® Mobile BI - native tablet applications delivering interactive reports
- Web and PDF

IN-MEMORY ANALYTICS ENGINE

Why SAS® Visual Analytics?

FOR BUSINESS

- Easy-to-use analytics create a starting point for building and analytics driven culture
- Visual exploration of data, combined with analytics, fuel insight discovery for competitive advantage
- Rapid delivery of insights to colleagues via the Web and mobile promote collaboration and fact based decisions

FOR IT

- Control governance and empower colleagues with easy access to all data
- Leverage a highly scalable environment for cost effective growth when the business needs it

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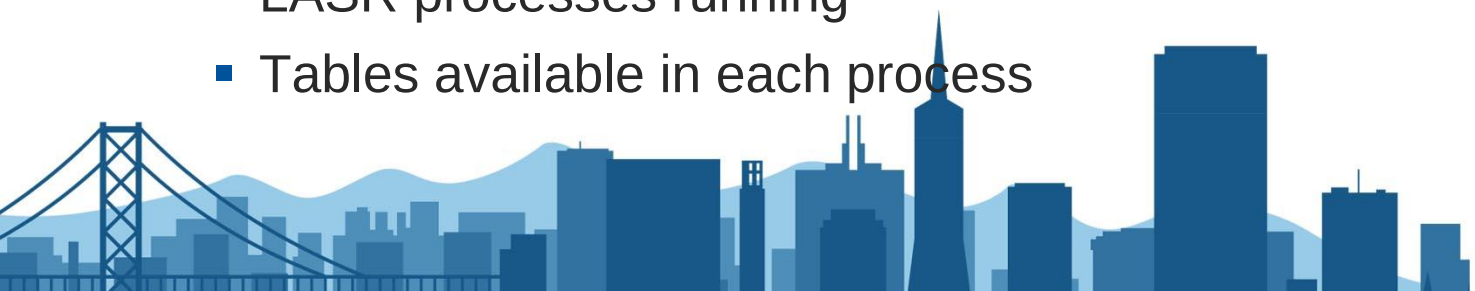
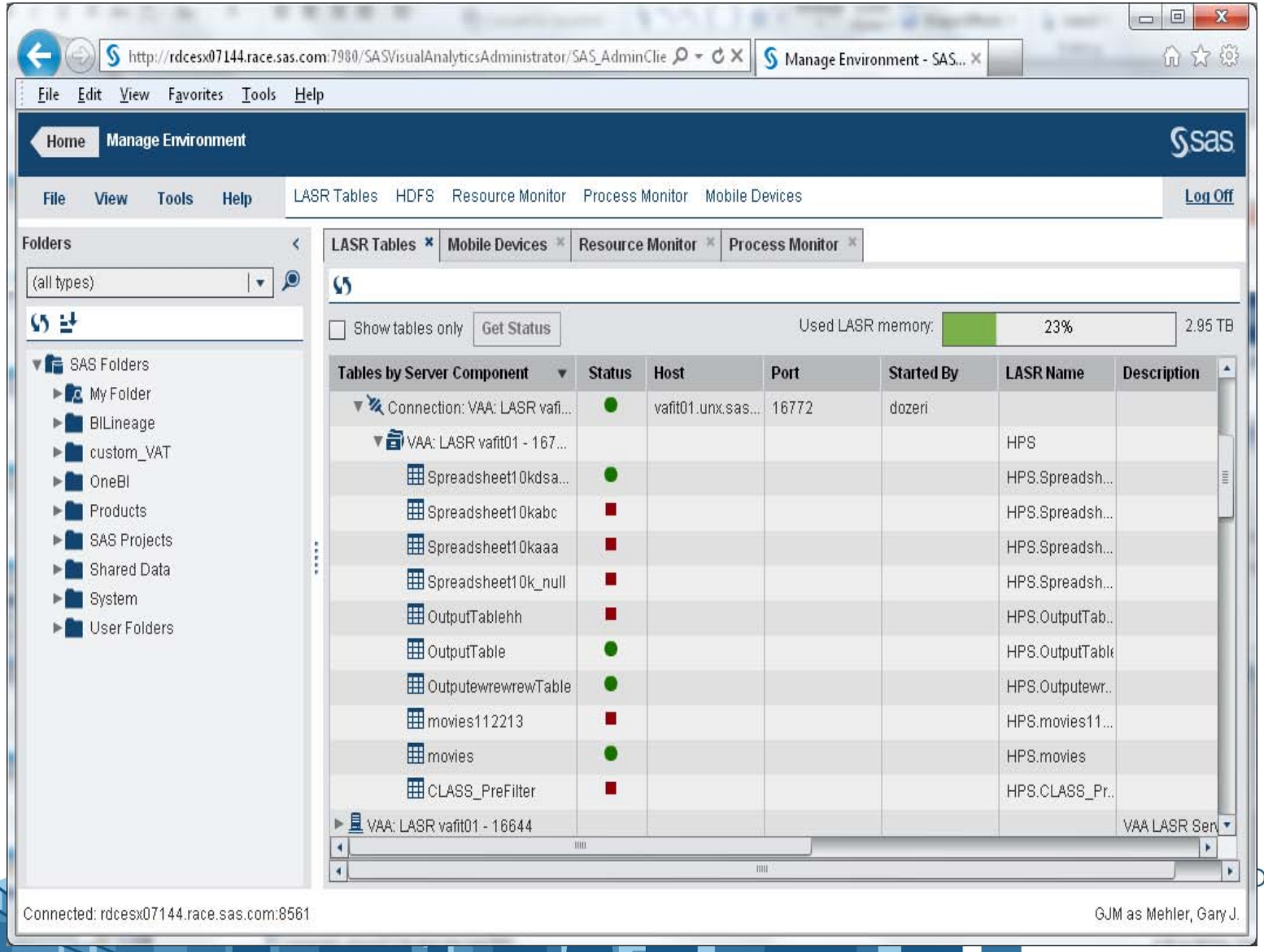
- **Understand LASR data serving**
- Understanding hardware
- Load and manage data
- Manage security access
- Monitor system
- Control mobile access

LASR SERVER – HOW IT WORKS

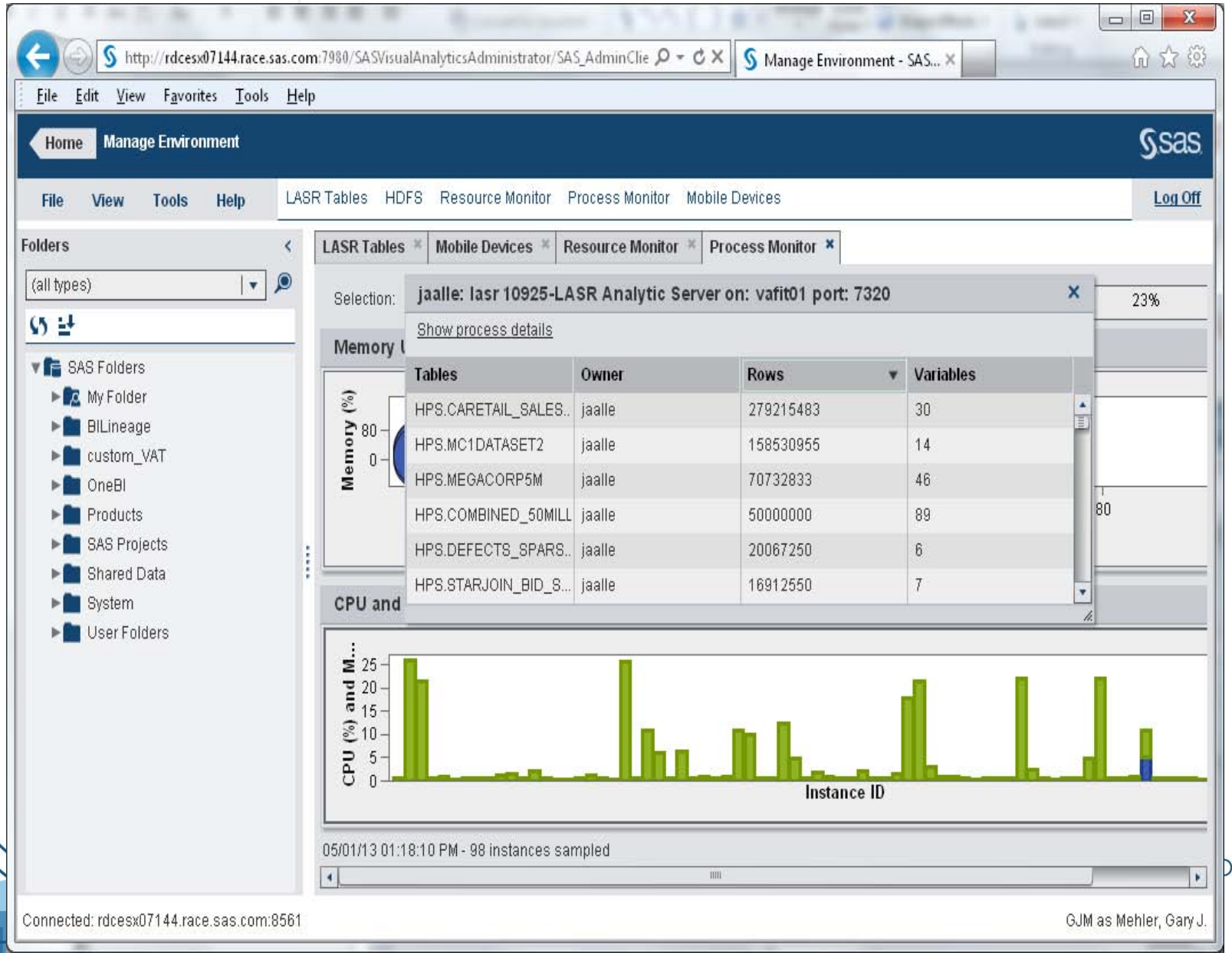
- Big data is processed fast because it is stored in memory
- Big data can be loaded quickly if stored in parallel, distributed storage
  - Hadoop HDFS, Teradata, Greenplum, others
- It can also be loaded from other data sources you have
- We load data into server sessions that hold data and perform analytics
- Server sessions can be limited in total size if needed
- Visual Analytics Administrator
  - LASR processes running
  - Tables available in each process



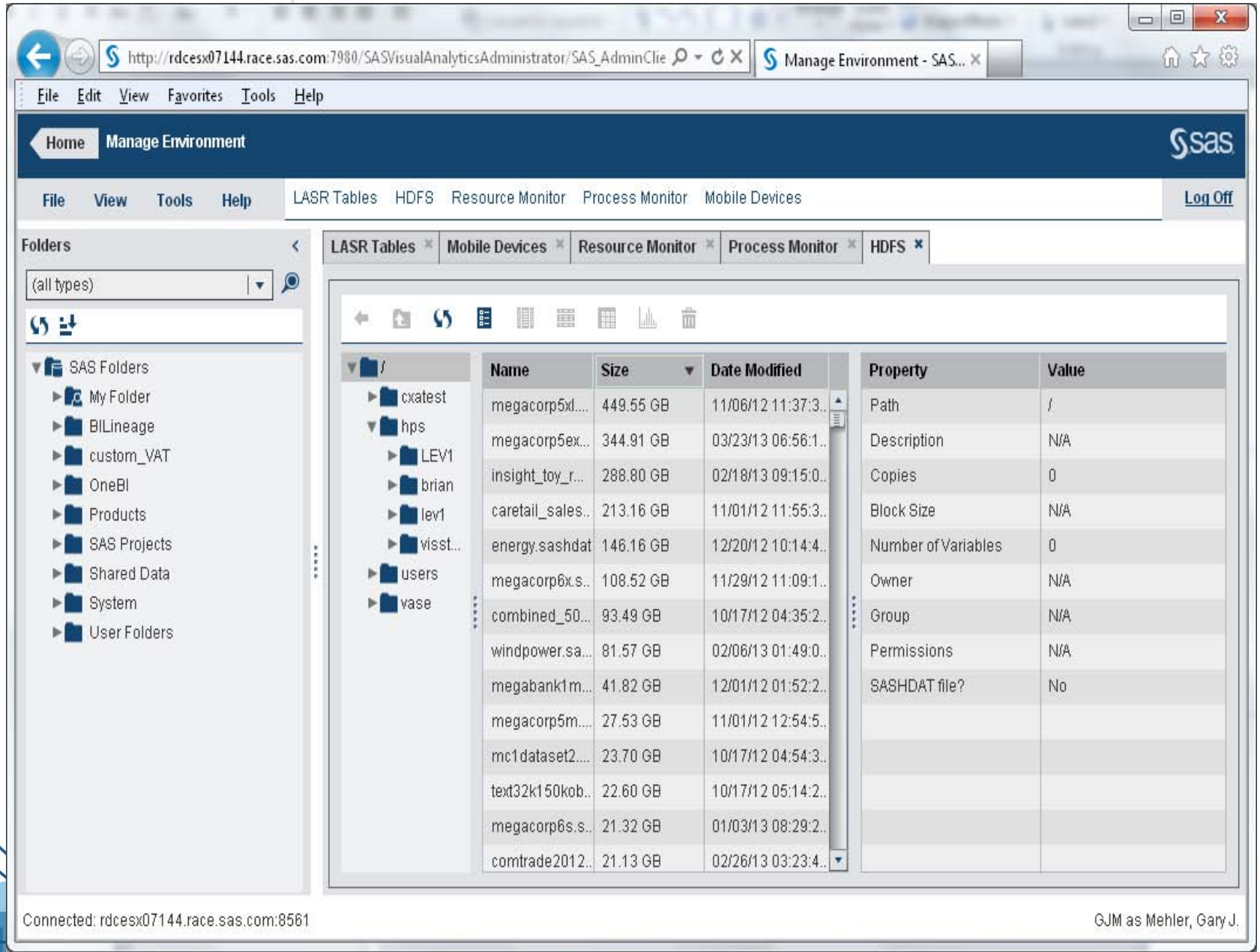
MANAGING LASR SERVER INSTANCES



KNOWING WHAT DATA IS BEING SERVED UP



SEEING WHAT IS IN DISTRIBUTED STORAGE



BASIC ADMINISTRATION

- Understand LASR data serving
- **Understanding hardware**
- Load and manage data
- Manage security access
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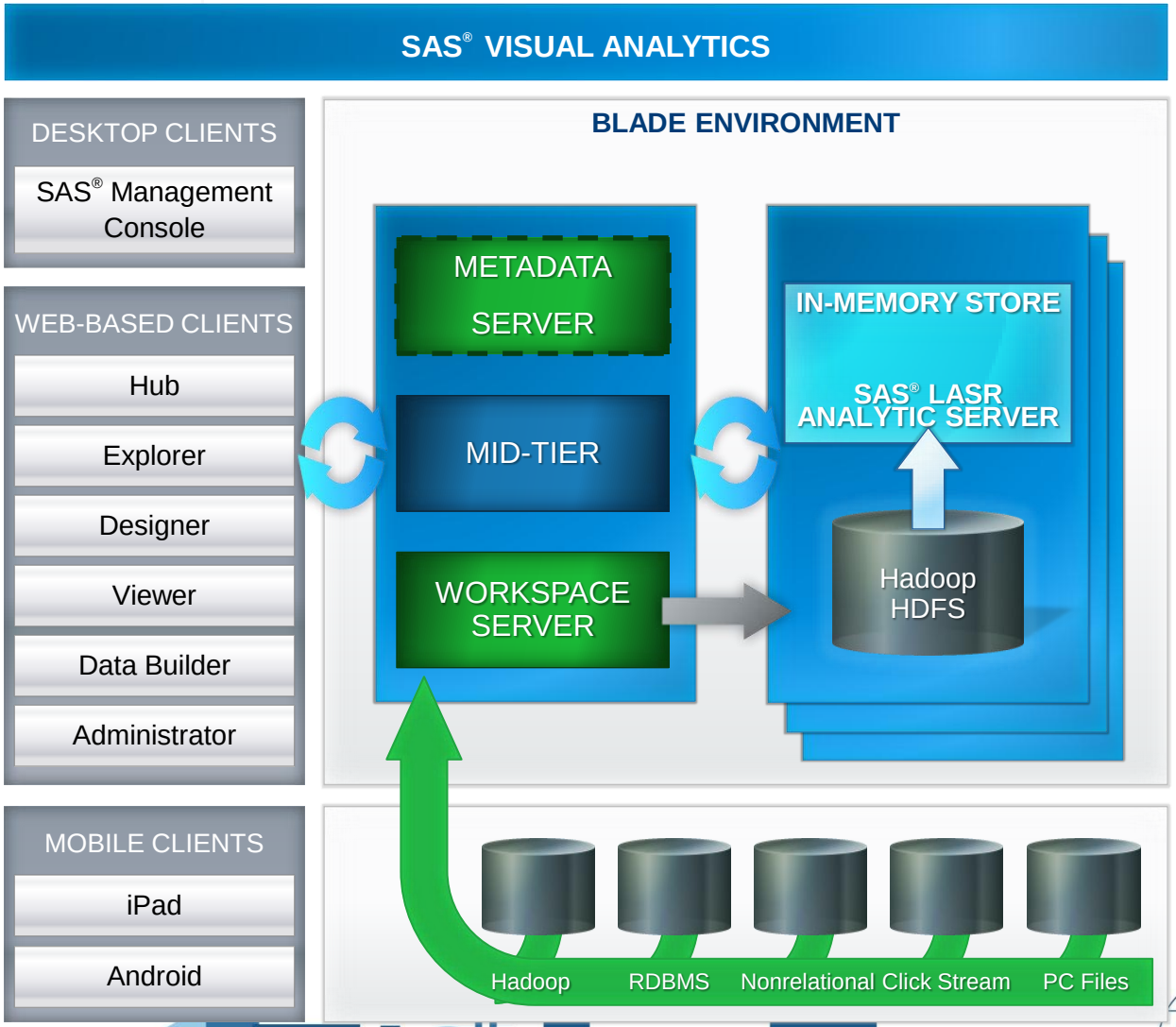
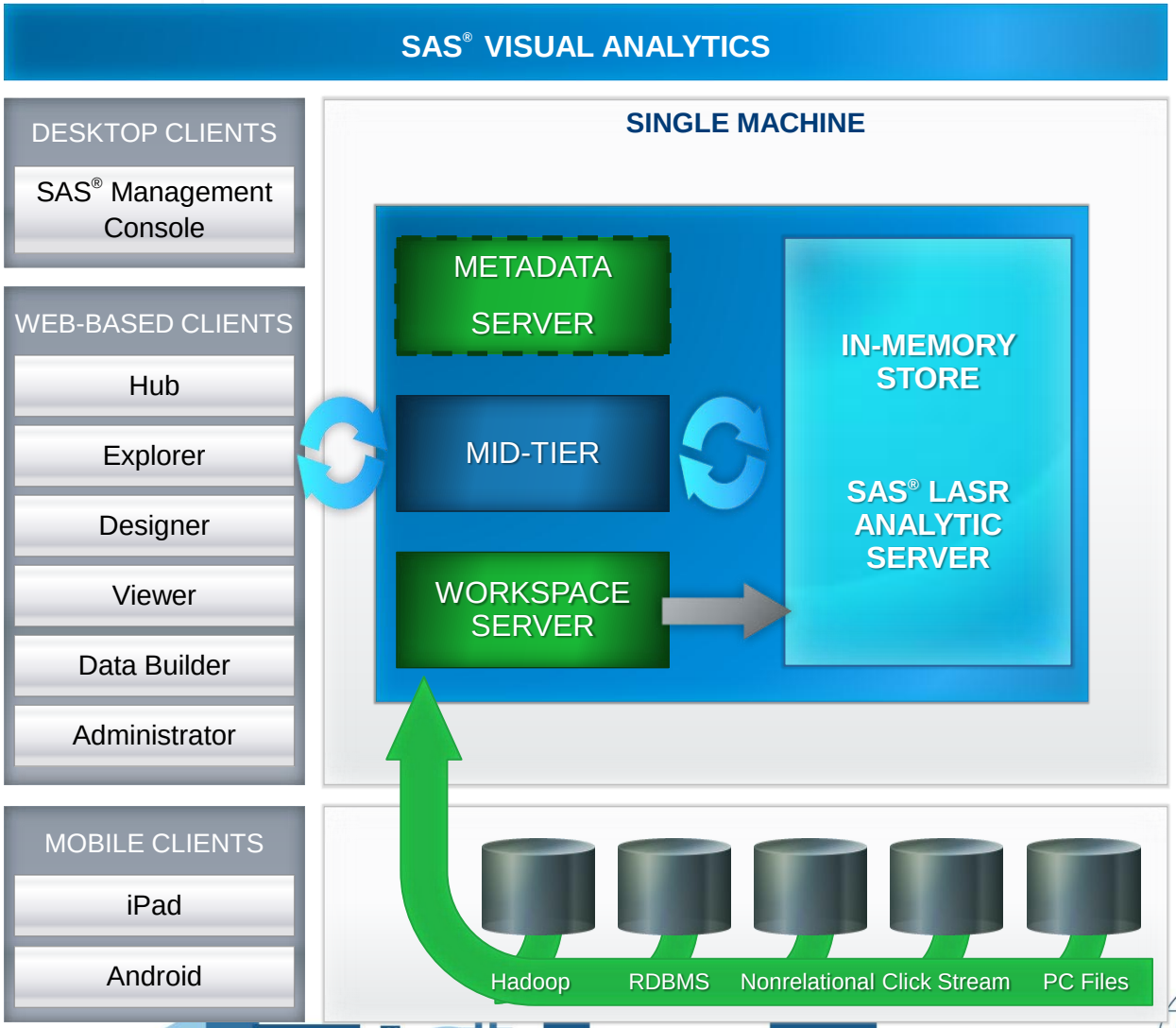
UNDERSTANDING HARDWARE

- LASR Server can run in two modes
  - MPP – across a collection of systems
    - » Data and processing of that data is distributed across all systems
    - » Operates on Linux systems
  - SMP – single system with plentiful memory and CPU cores
    - » Data and processing occurs on a single system
    - » Operates on a Linux system
    - » Coming in Summer: can operate on a Windows-based server
- Visual Analytics Administrator shows resource use across hardware

DISTRIBUTED DEPLOYMENT *(FOR COMMODITY HARDWARE)*



NON-DISTRIBUTED DEPLOYMENT *(FOR COMMODITY HARDWARE)*



INTRODUCTION TO SAS VISUAL ANALYTICS

Visual Analytics 6.1 comes in 2 versions

- **Distributed**
  - **Multiple Machines**
  - **SAS High Performance Analytics Environment**
  - **Co-located Data Provider**

- **Non-Distributed**
  - Single machine
  - No SAS High-Performance Analytics Environment
  - No co-located data provider

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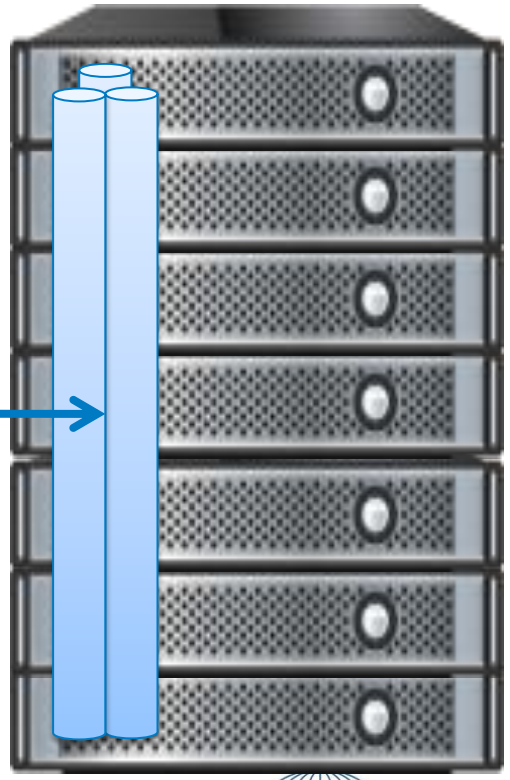
SAS VISUAL ANALYTICS

The Distributed version of SAS VA 6.1 comes with one of 3 co-located data Providers

- Distributed
  - Multiple Machines
  - SAS High Performance Analytics Environment
  - **Co-located Data Provider**



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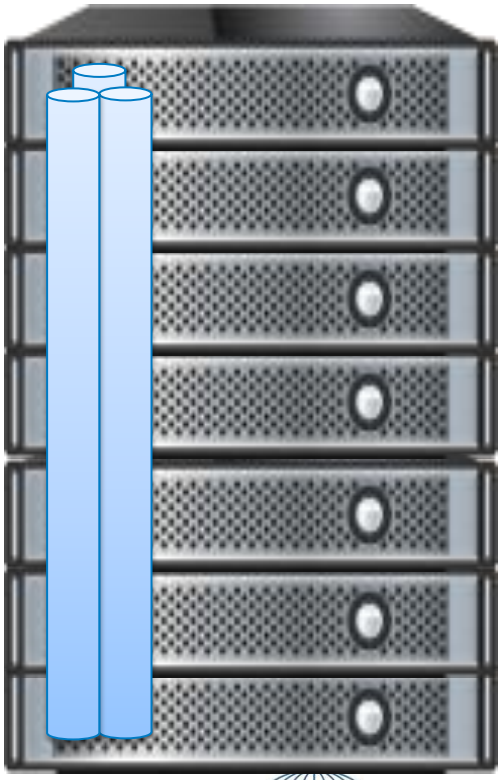
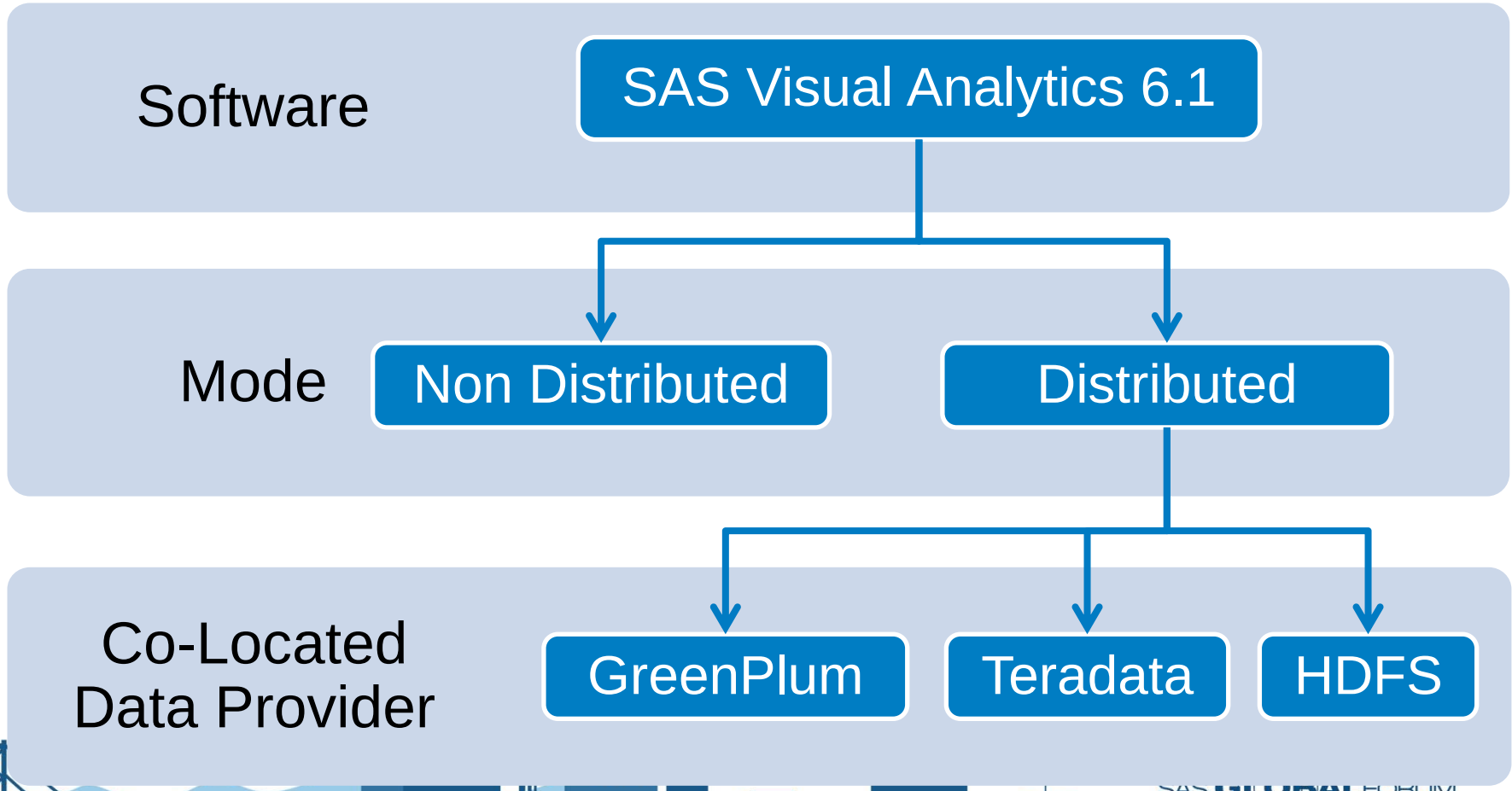
The Distributed version of SAS VA 6.1 comes with one of 3 co-located data Providers

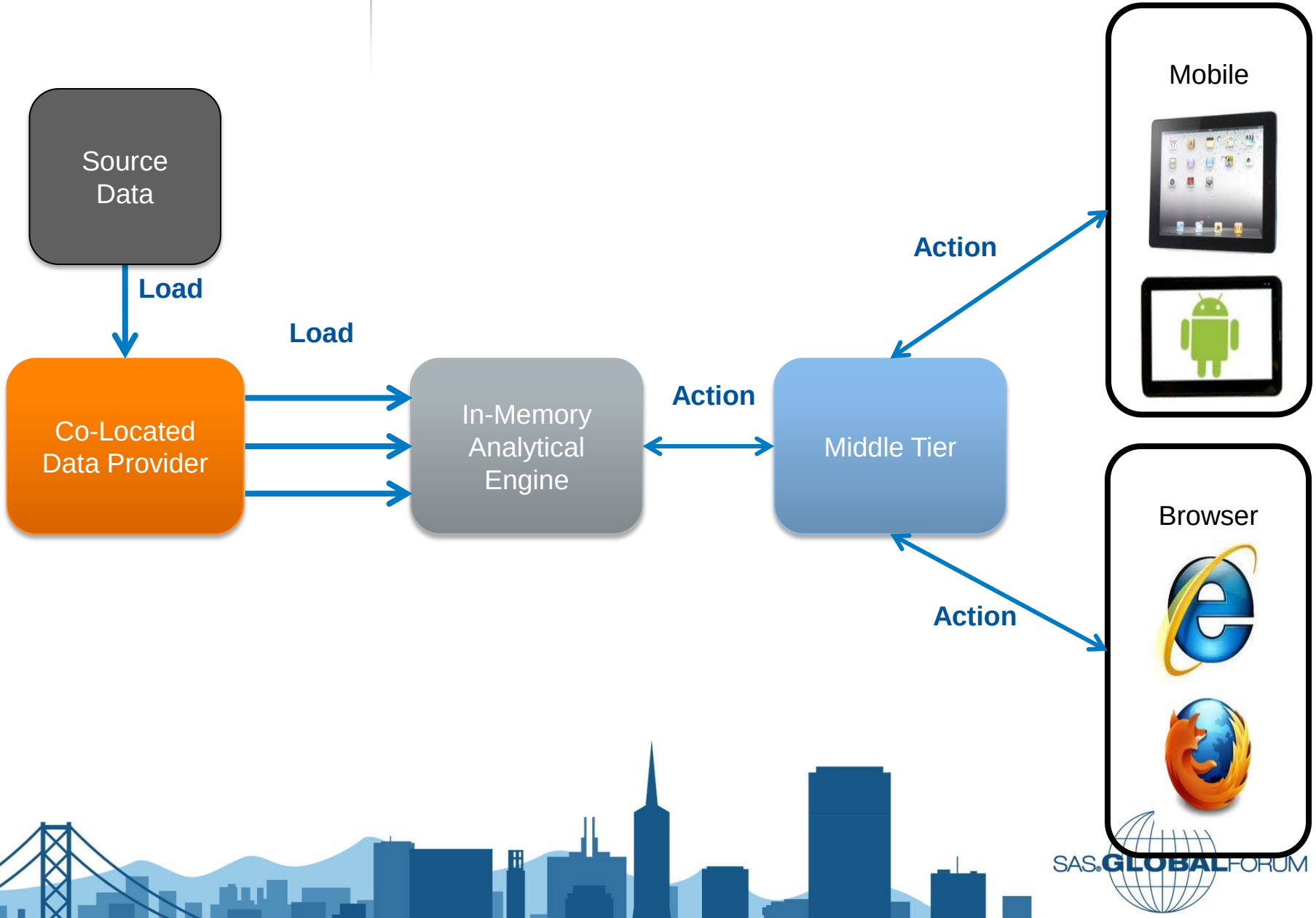
- The 3 choices of Co-Located Data providers are
  - Teradata
  - GreenPlum
  - Hadoop Distributed File System (aka HDFS)



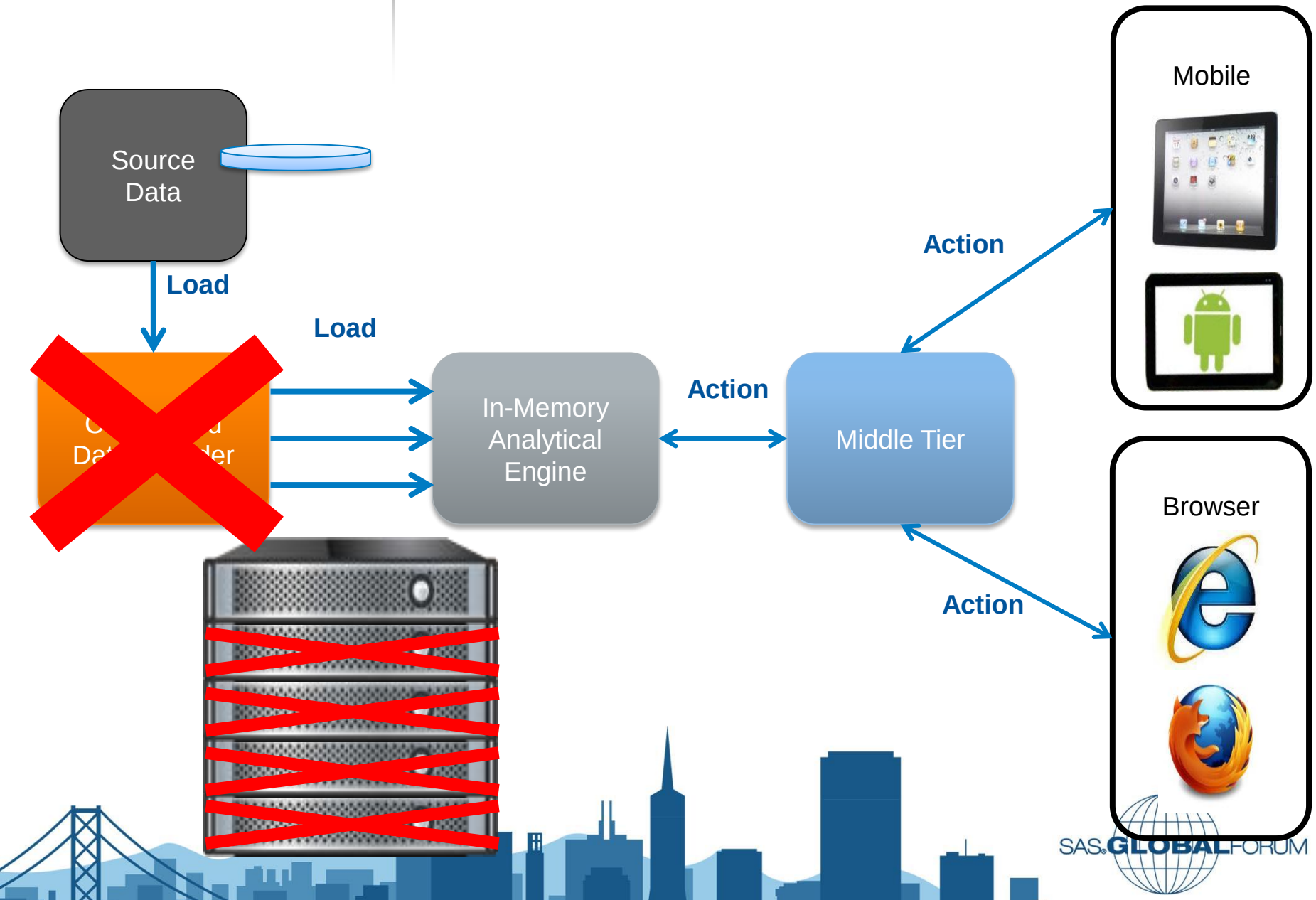
- To put it another way:



HIGH LEVEL VIEW

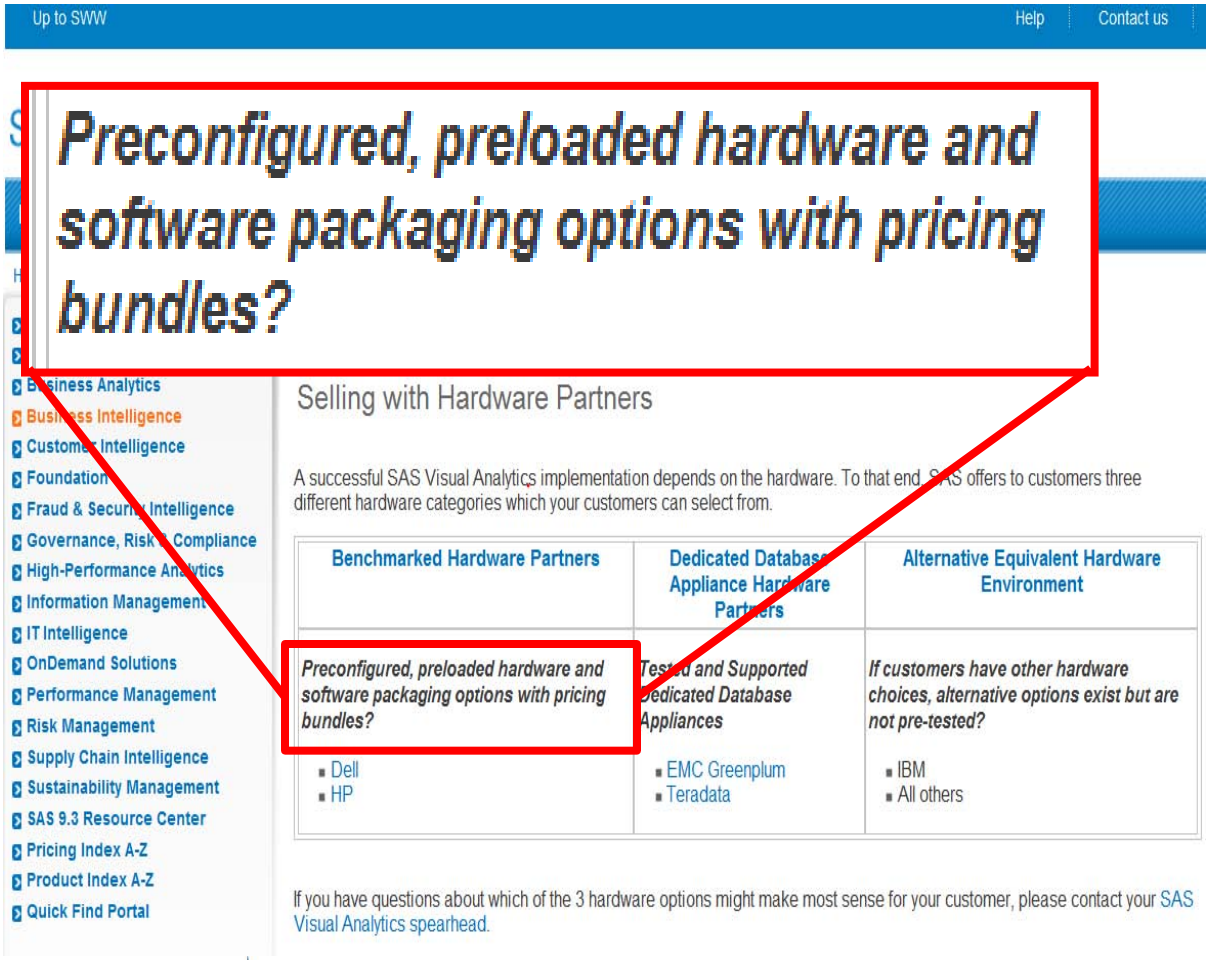


DATA LOADING – NON-DISTRIBUTED



PACKAGING REALITIES

- VA is not an appliance
  - The customer has to buy the hardware
  - It still does not come in a “ready to go” state.
- You still need someone to install/configure



DEFINITIONS – BLADES

C7000 Chassis
Holds BL460 Blades

- Blades are very small

BL460

DEFINITIONS - CHASSIS

- A chassis contains
  - A number of blades
  - Power Supply for the blades
  - Cooling
  - Networking Interfaces
  - Storage Interfaces

Multiple Chassis can be connected together.

- Animation

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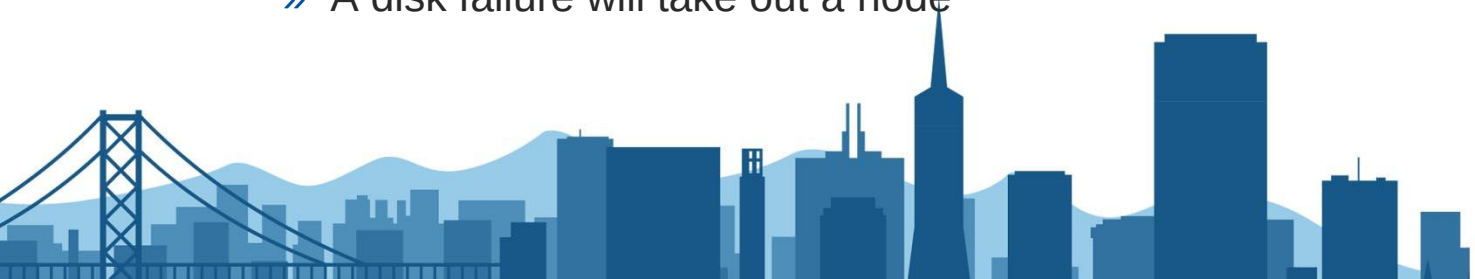
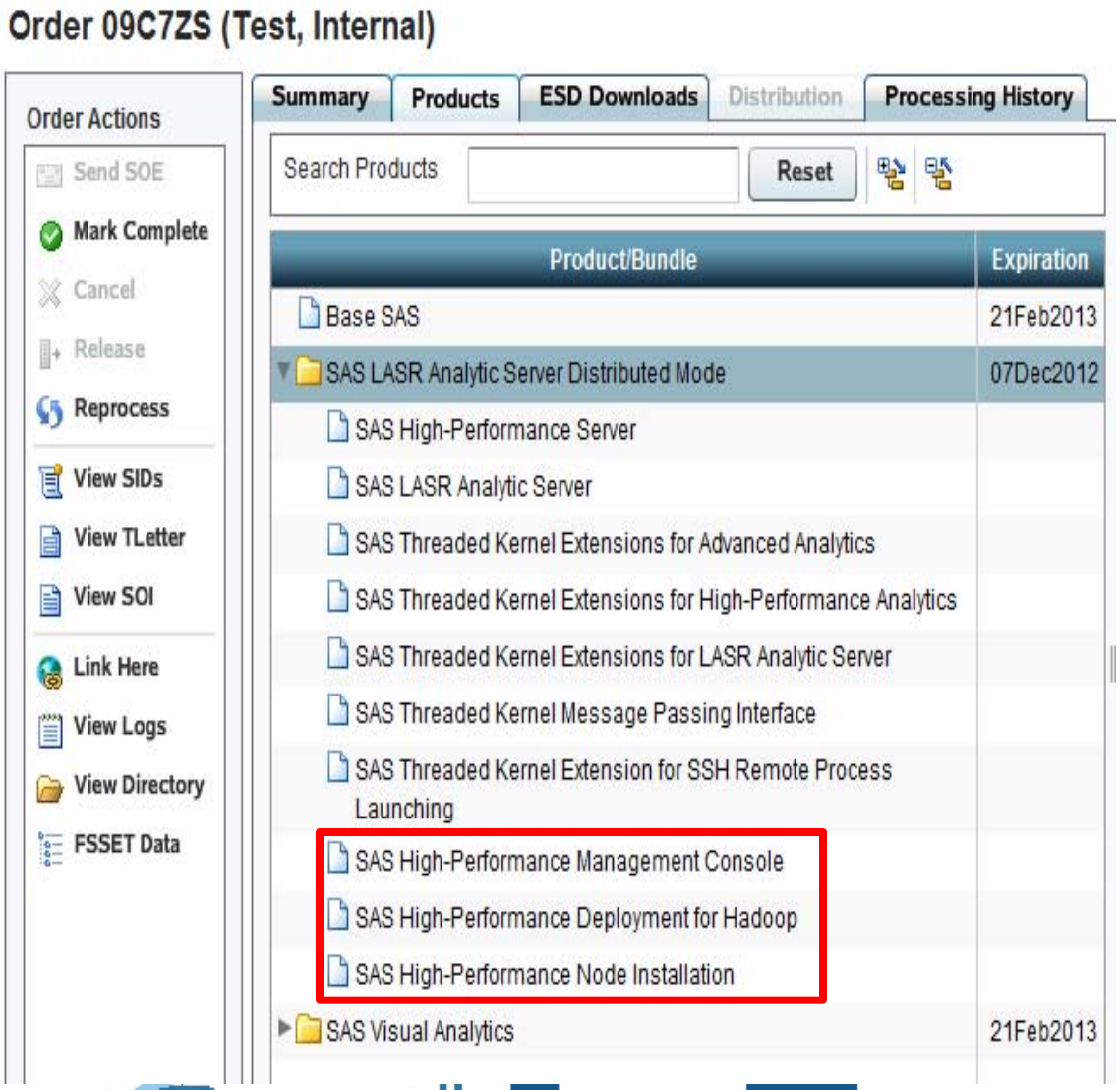
STORAGE

- Applicable to Commodity Hardware
- Teradata and Greenplum have their own pre-defined storage
- VA does not require very fast storage
  - No need for FusionIO/SSD on worker nodes
- VA does not require Shared (clustered) Storage
- Recommended local storage configuration
  - Mirrored drives on SAS Node
  - Mirrored drives on Root Node and Name Node
  - Other Nodes do not need mirroring, but that may make them fragile
    - » A disk failure will take out a node



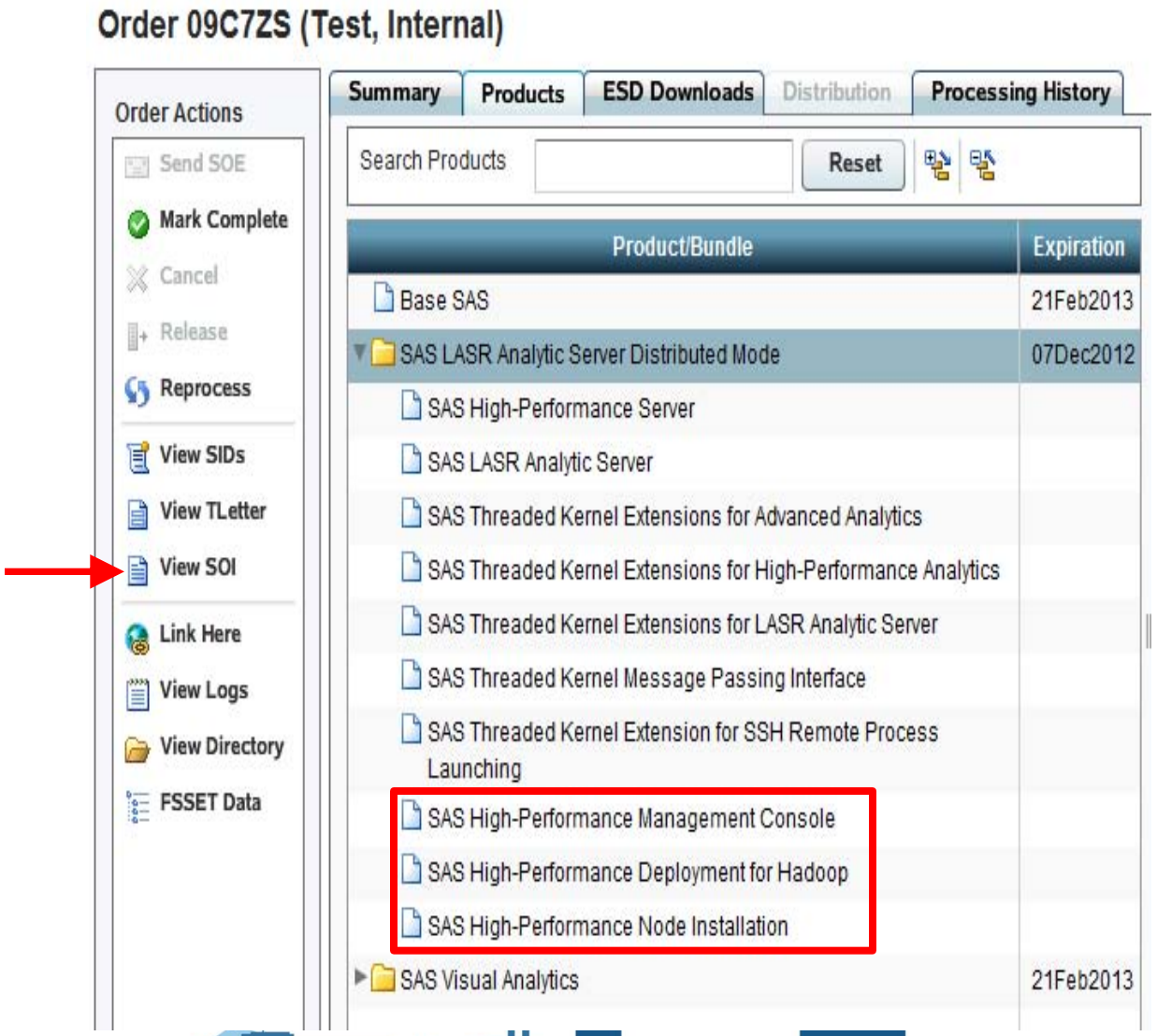
5.1 Order

SAS COMSAT: VA MPP – DISTRIBUTED MODE



5.1 Order

SAS COMSAT: VA MPP – DISTRIBUTED MODE



5.1 Order

SAS ORDER INFORMATION: VA MPP – DISTRIBUTED MODE

Your Order Information:

Order Number:	09C7ZS
SAS Installation Key:	SJSL-96H5-7ST3
Deployment Type:	Planned (Deployment plan needed)
Date:	December 03, 2012
Space Required for SAS Software Depot:	11.7GB
Software Status:	Pre-production

SAS Installation Representative	E-mail Address	Tech Support Site Number
Temporary SAS User		70068118

Information for Tech Support Site 70068118:

Site Name:	Pre-Prod LAX VA 6.1 Distributed
Tech Support Site Number:	70068118
Contracts Site Number:	545535
Operating System:	Linux® for X64
Product:	SAS 9.3 64-bits TS1M2, Rev. 930_12w50

Product(s) Ordered

Base SAS
SAS LASR Analytic Server Distributed Mode
SAS Visual Analytics

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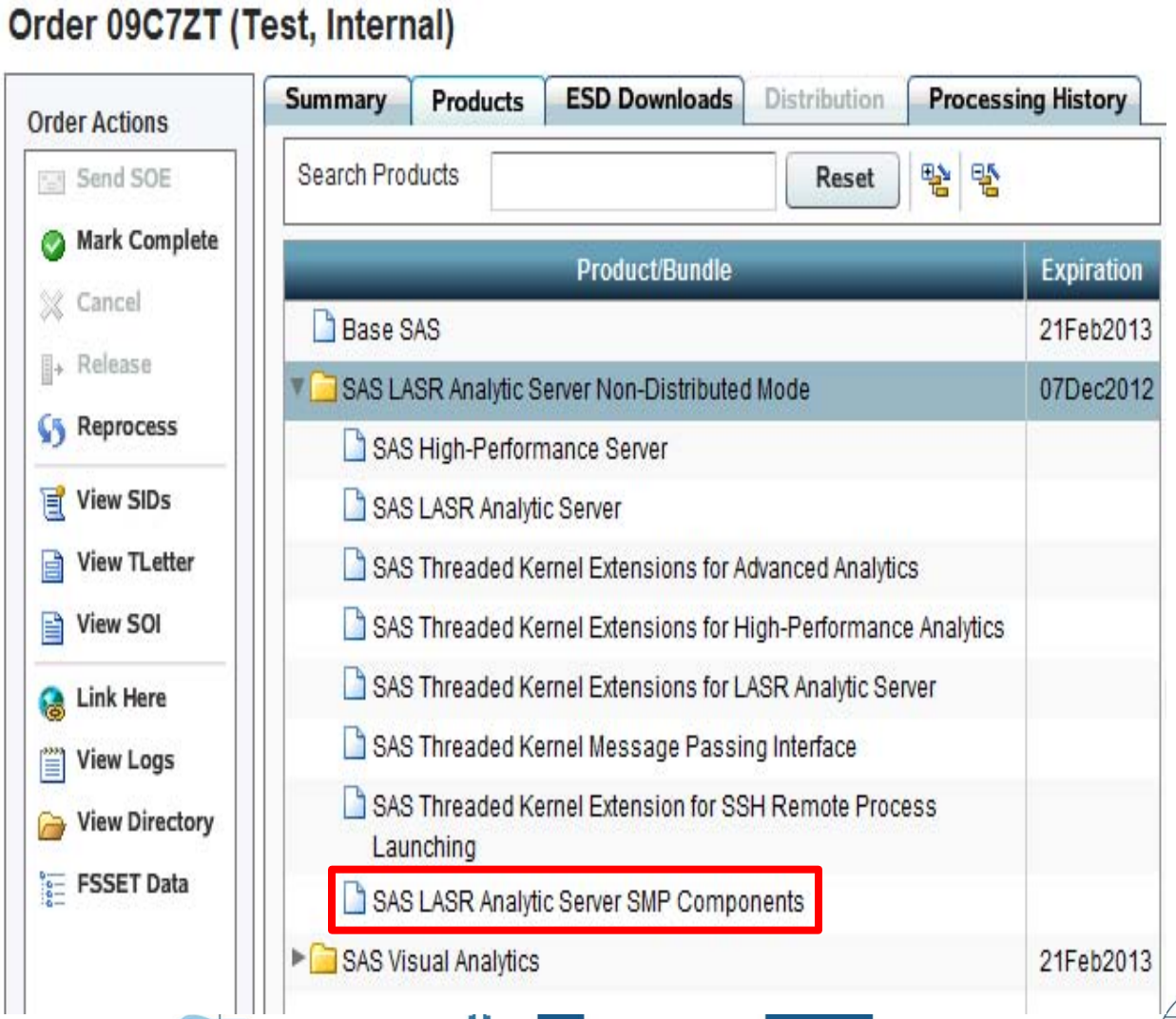
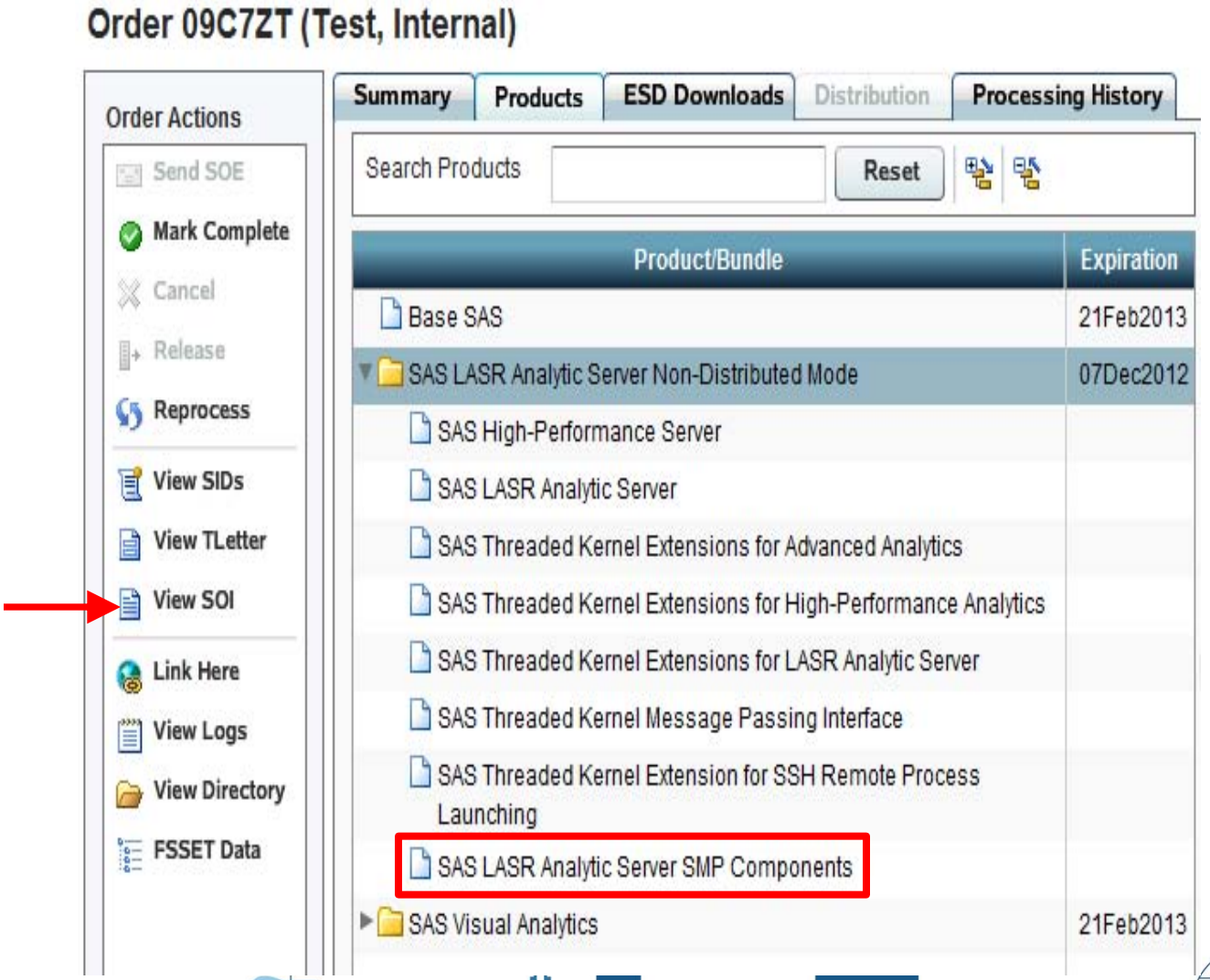
5.1 Order

SAS COMSAT: VA SMP – *NON*-DISTRIBUTED MODE



5.1 Order

SAS COMSAT: VA SMP – *NON*-DISTRIBUTED MODE



5.1 Order

SAS ORDER INFORMATION: VA SMP – *NON*-DISTRIBUTED MODE

Your Order Information:

Order Number:	09C7ZT
SAS Installation Key:	WFHP-1278-Y9LD
Deployment Type:	Planned (Deployment plan needed)
Date:	December 03, 2012
Space Required for SAS Software Depot:	11.4GB
Software Status:	Pre-production

SAS Installation Representative	E-mail Address	Tech Support Site Number
Temporary SAS User		70068118

Information for Tech Support Site 70068118:

Site Name:	Pre-Prod LAX VA 6.1 SMP
Tech Support Site Number:	70068118
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Operating System:	Linux® for X64
Product:	SAS 9.3 64-bits TS1M2, Rev. 930_12w50

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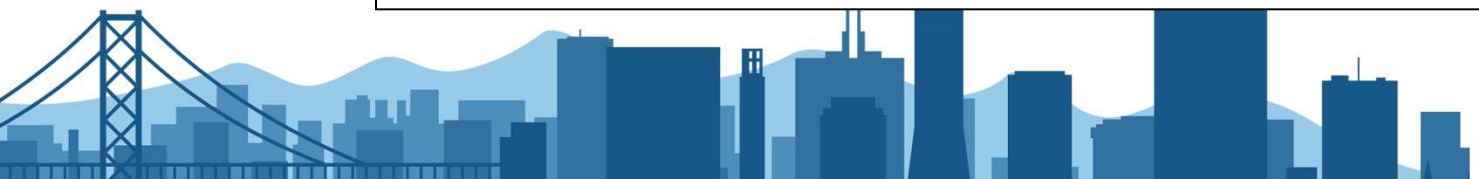
SAS LASR Analytic Server Non-Distributed Mode
SAS Visual Analytics



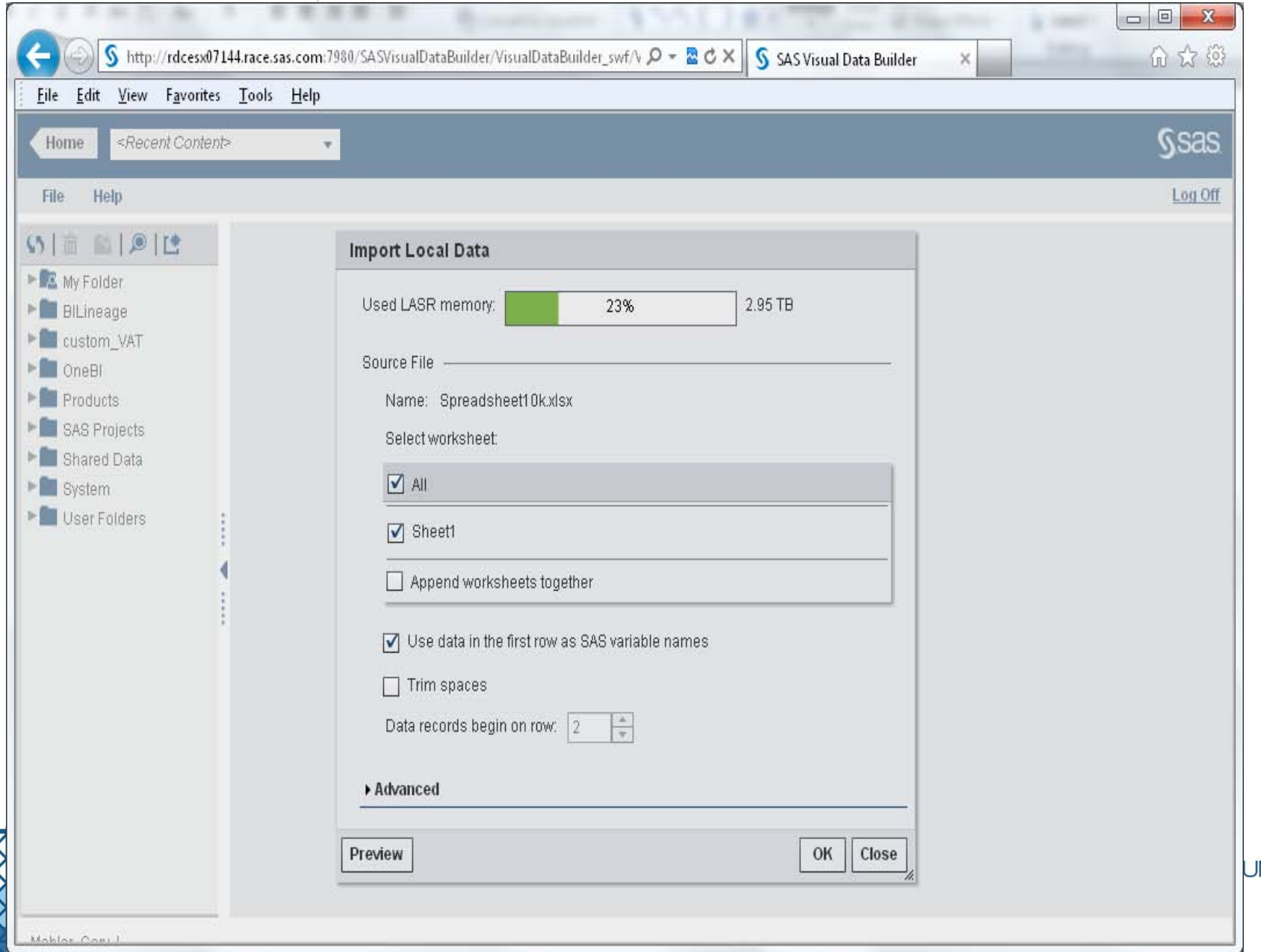
BASIC ADMINISTRATION

- Understand LASR data serving
- Understanding hardware
- **Load and manage data**
- Manage security access
- Monitor system
- Control mobile access

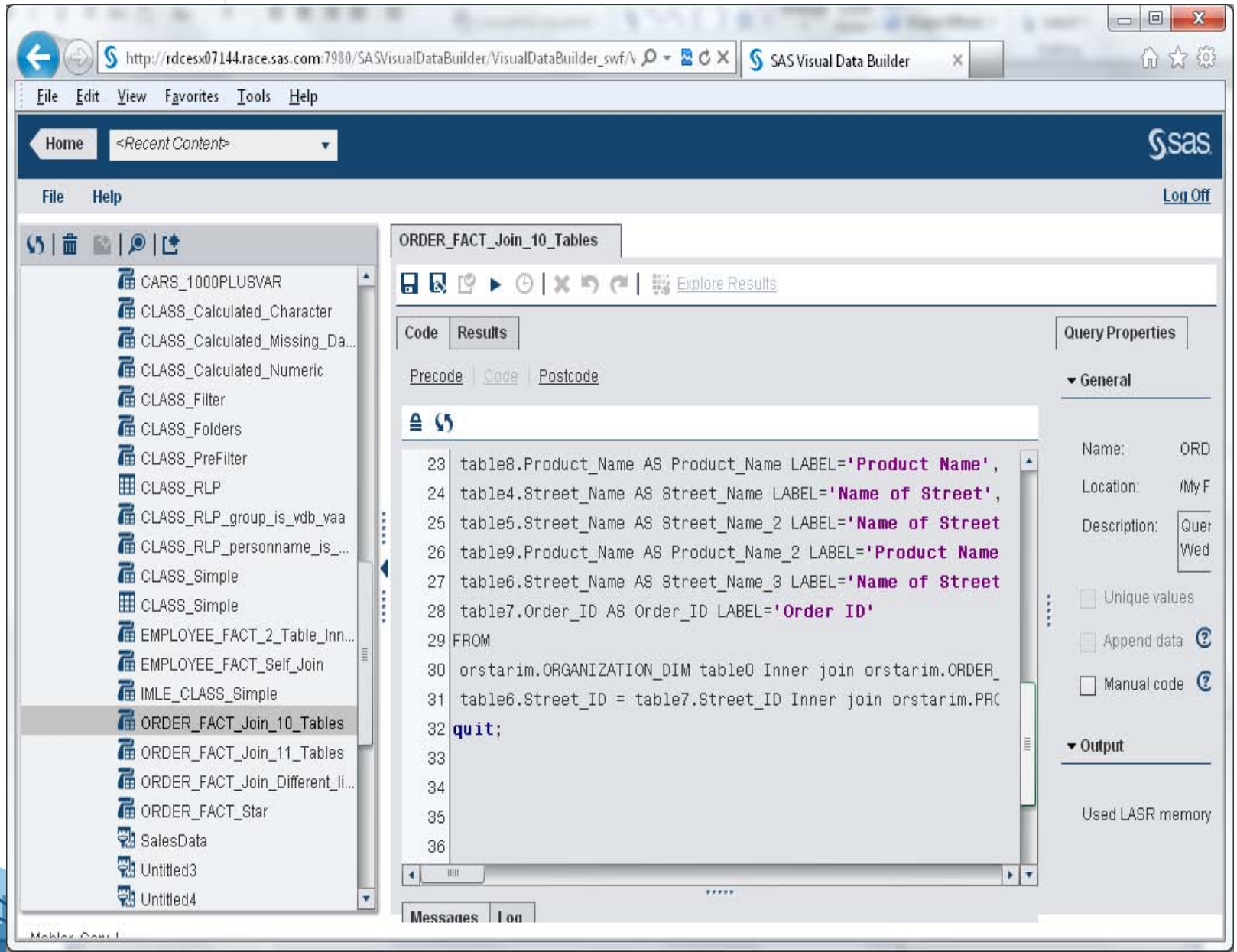
ACCESSING DATA

- Access new information
  - Excel spreadsheets
  - CSV-exported data
  - SAS datasets on a desktop
- Access existing information
  - SAS data on a network
  - Other data in databases
  - Data available from SAS Information Maps
- Visual Data Builder

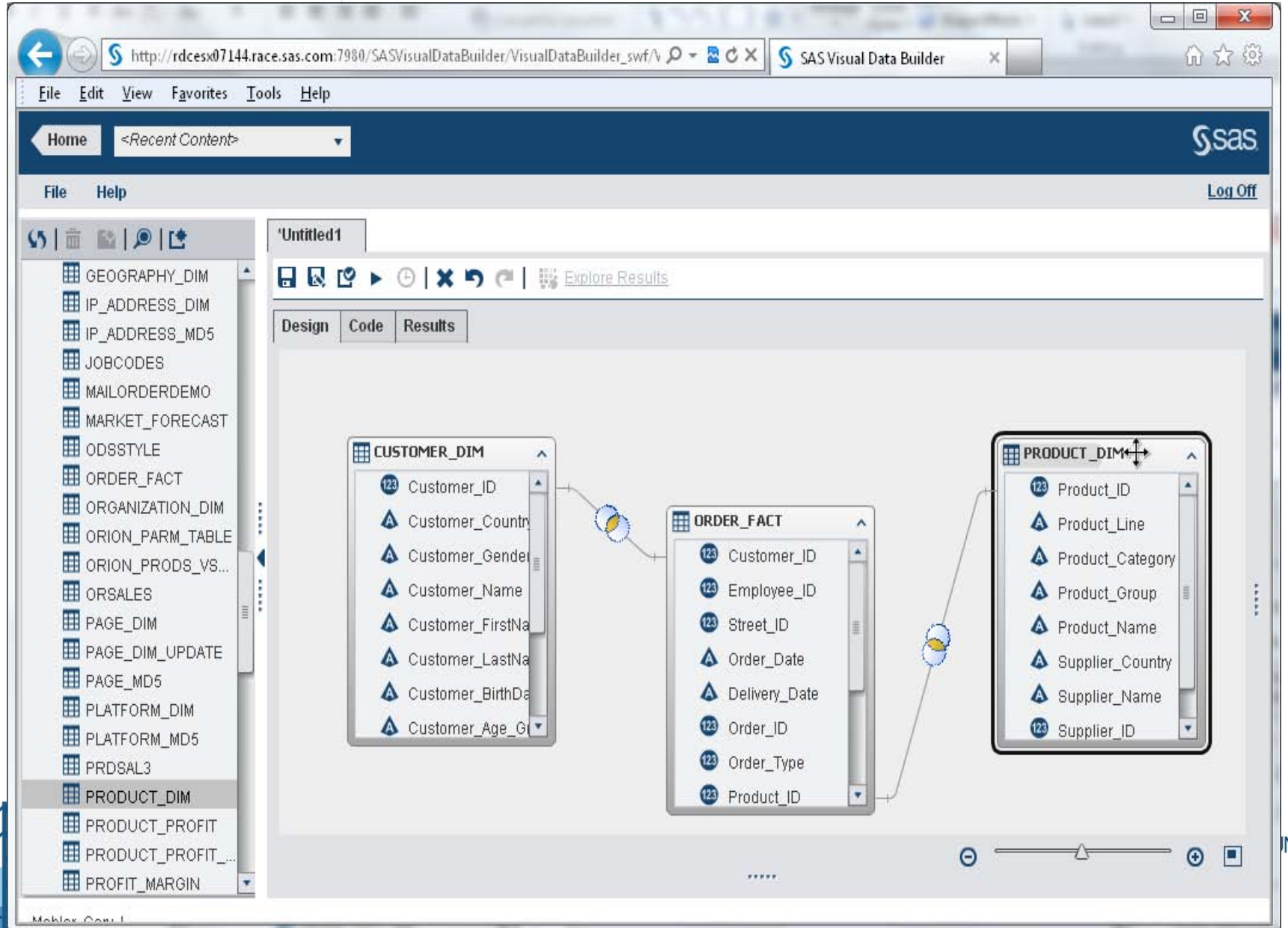
IMPORTING LOCAL SPREADSHEETS, CSV FILES, ETC



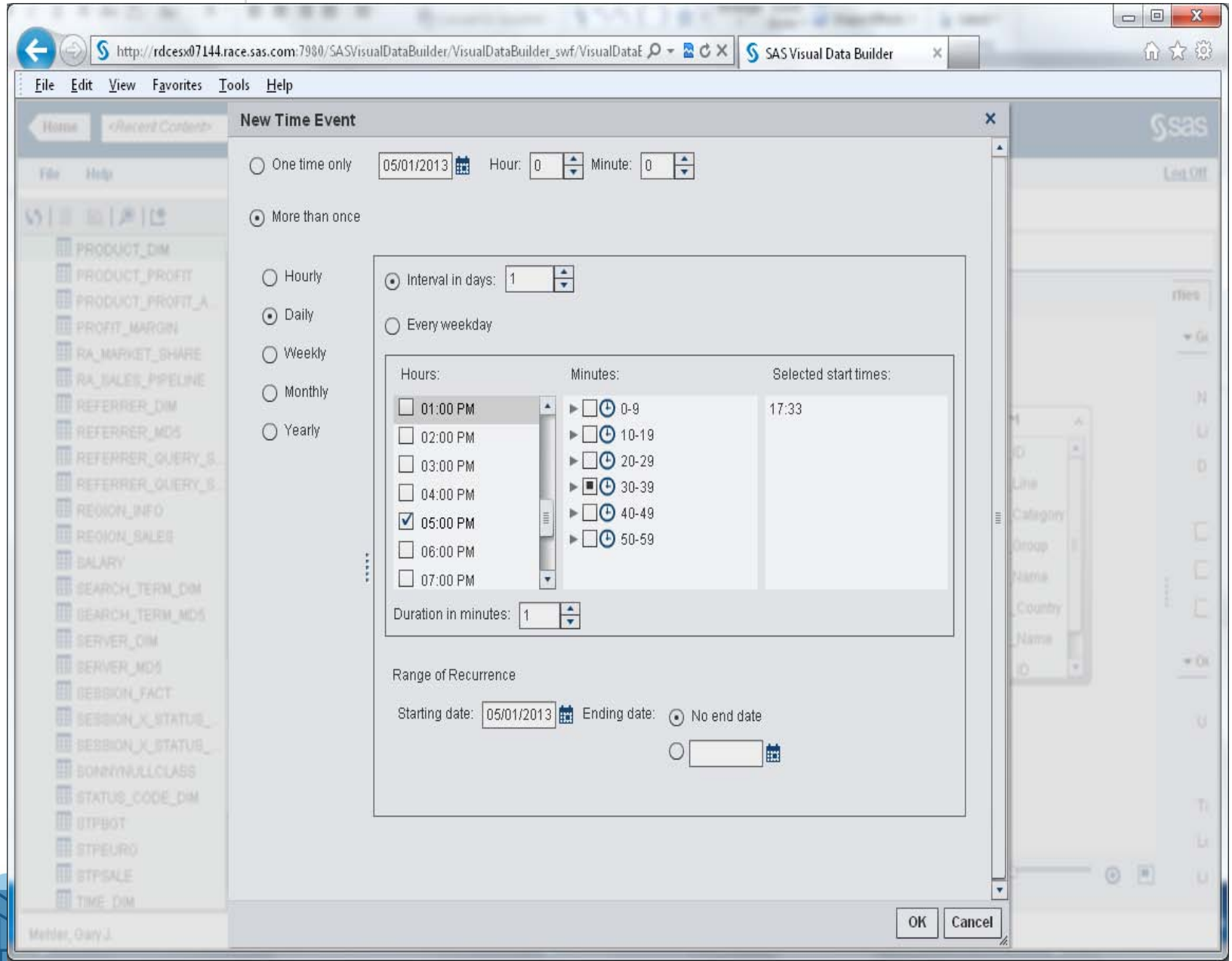
IMPORTING SAS INFORMATION MAPS



JOINING DATA PRIOR TO LOADING INTO LASR MEMORY



SCHEDULING RECURRING TASKS TO KEEP DATA CURRENT



MANIPULATING DATA

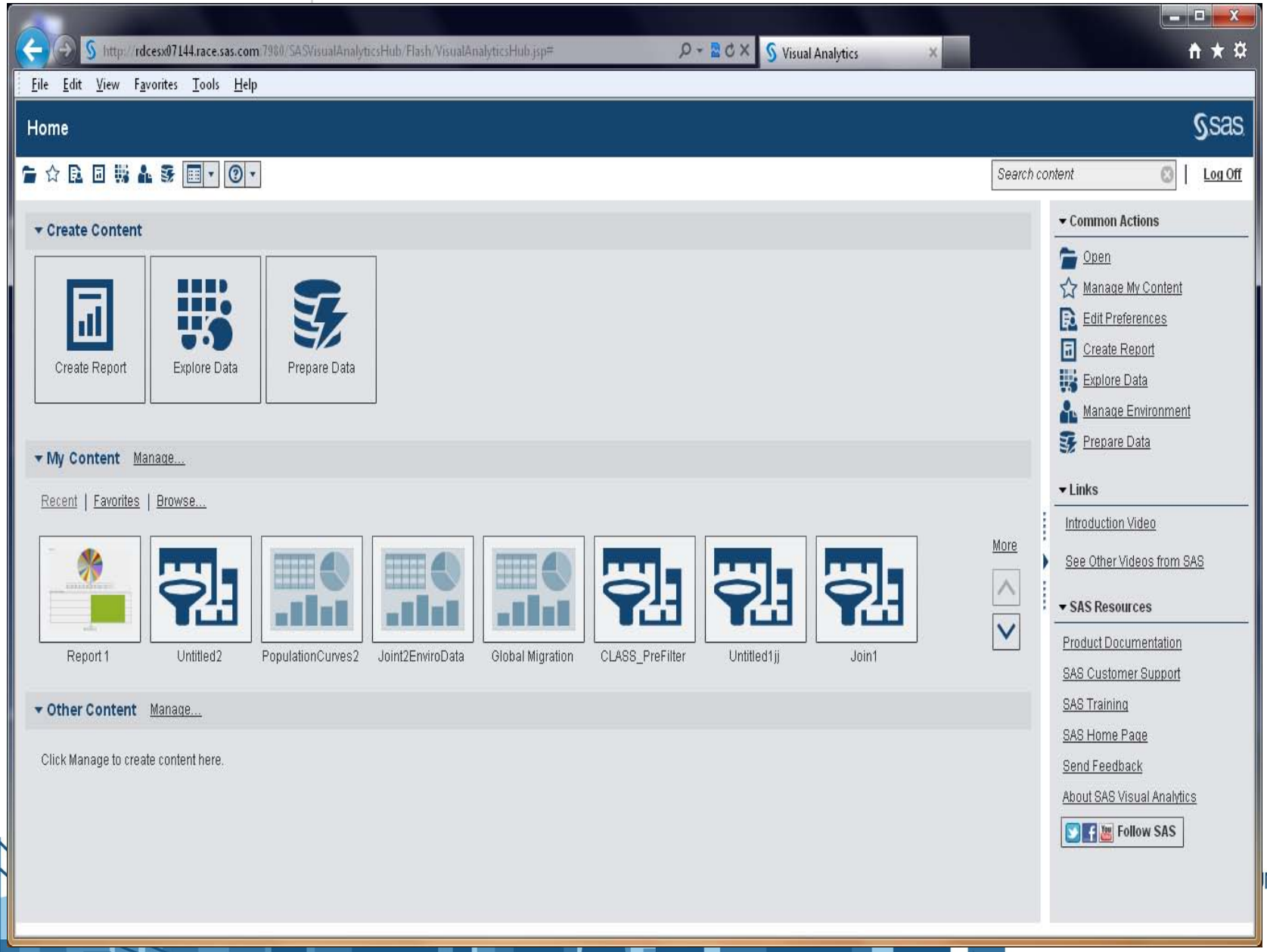
- Perform basic joins on data before it is loaded
- Can load directly into LASR or into other SAS library types
- If loading into LASR, can stage data in distributed storage as a pre-step
- Can schedule to re-run on-demand to keep data fresh

- Understand LASR data serving
- Understanding hardware
- Load and manage data
- **Manage security access**
- Monitor system
- Control mobile access

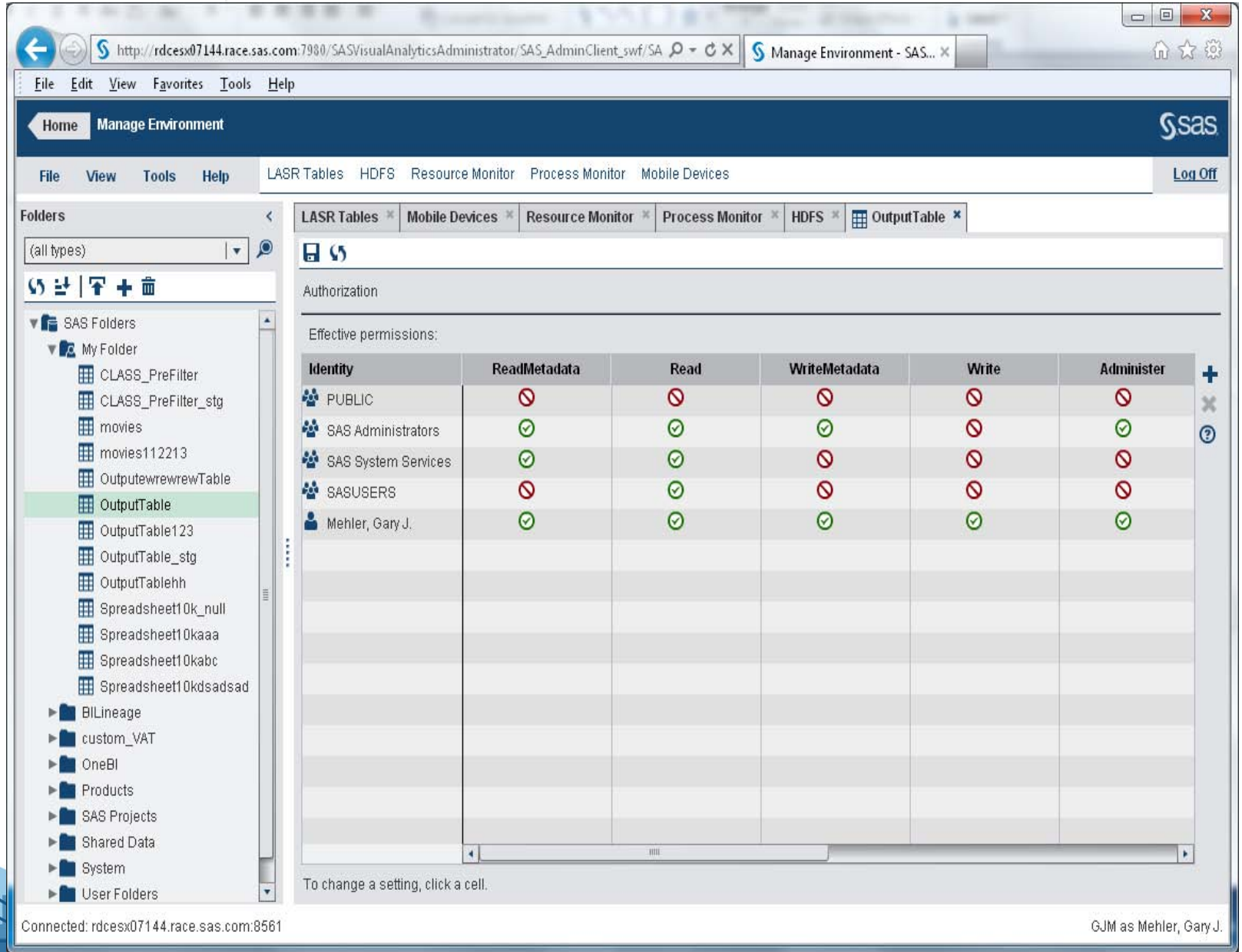
MANAGE SECURITY ACCESS

- Identities and access managed through SAS Metadata Server
- New table definitions can be added and kept current
  - Like Register Tables and Update Table Metadata in SAS Management Console
- Folder-level, table-level, and row-level permission can be granted
- LASR Server sessions can be managed and maintained
- Roles and capability enabled

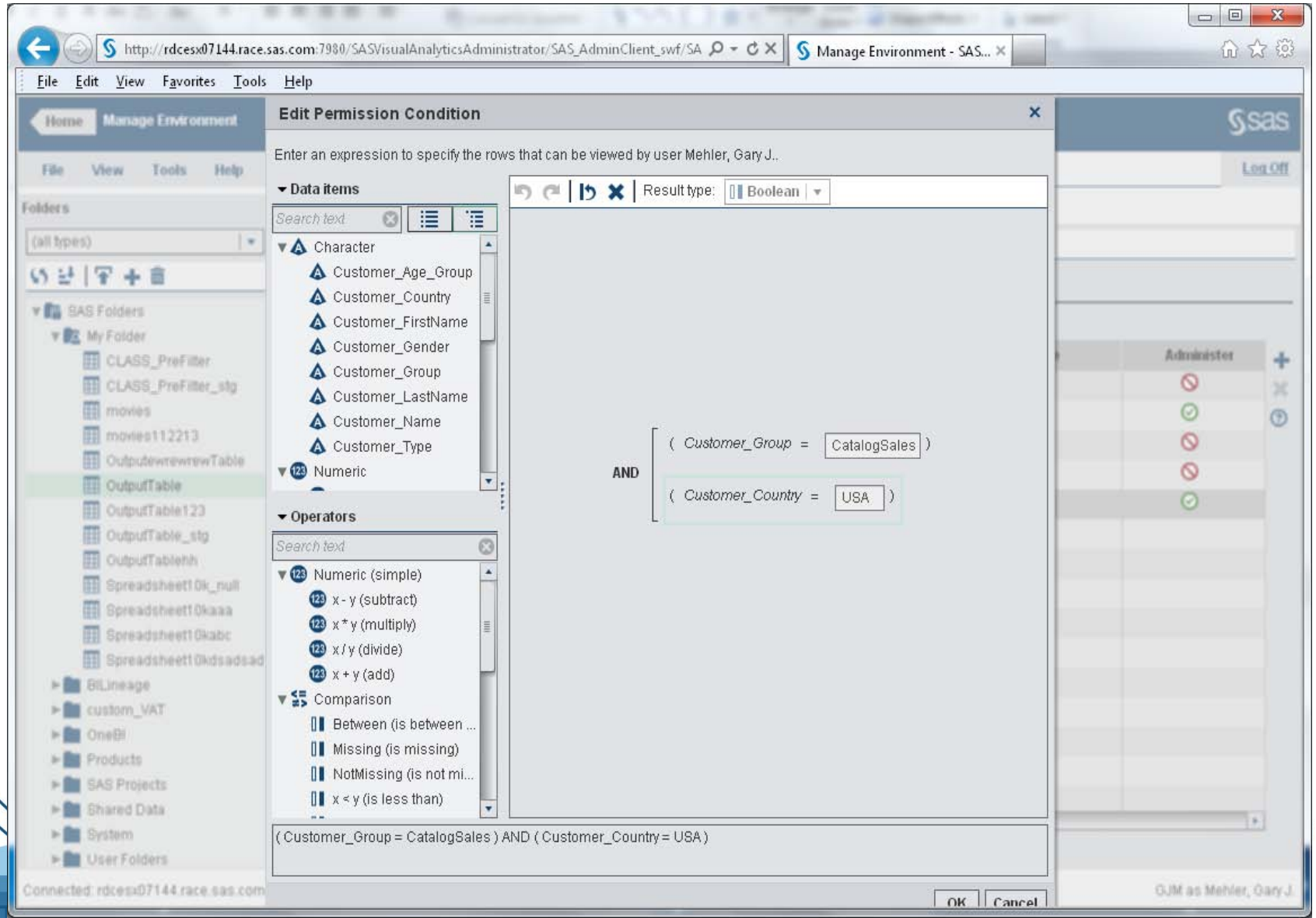
ROLES AND CAPABILITIES CAN LIMIT FUNCTIONAL ACCESS



SECURING DATA SOURCES, REPORTS, EXPLORATIONS



SETTING ROW-LEVEL SECURITY ON DATA SOURCES



BASIC ADMINISTRATION

- Understand LASR data serving
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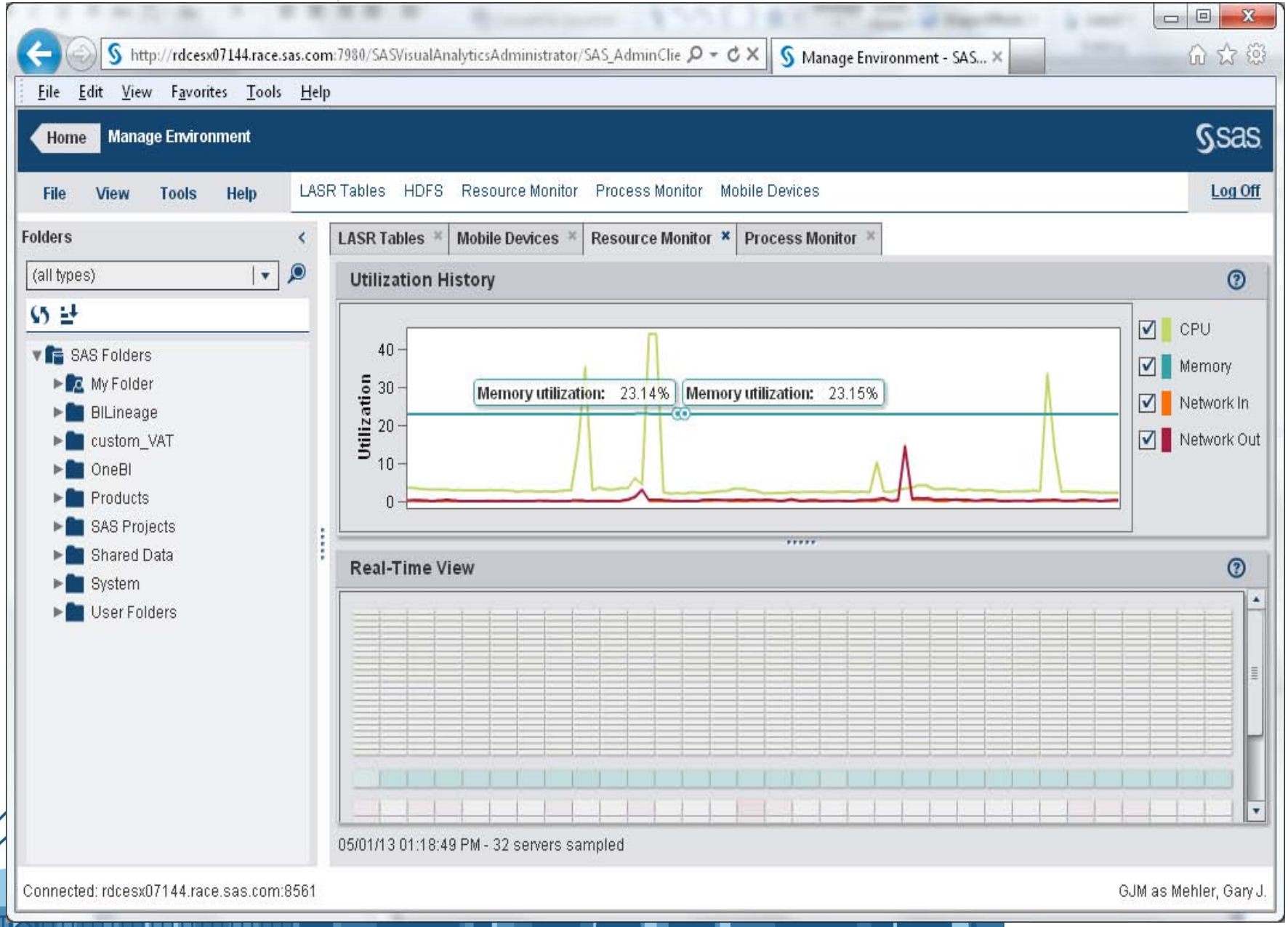
MONITOR SYSTEM

- Observe memory, CPU, and network utilization
- See which LASR server processes are consuming memory or processing
- Determine which tables are available and their status
- Historic and other reports coming from Environment Manager later this year

BROWSING OVERALL HEALTH AND ACTIVITY



BASIC ADMINISTRATION

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- **Control mobile device access**

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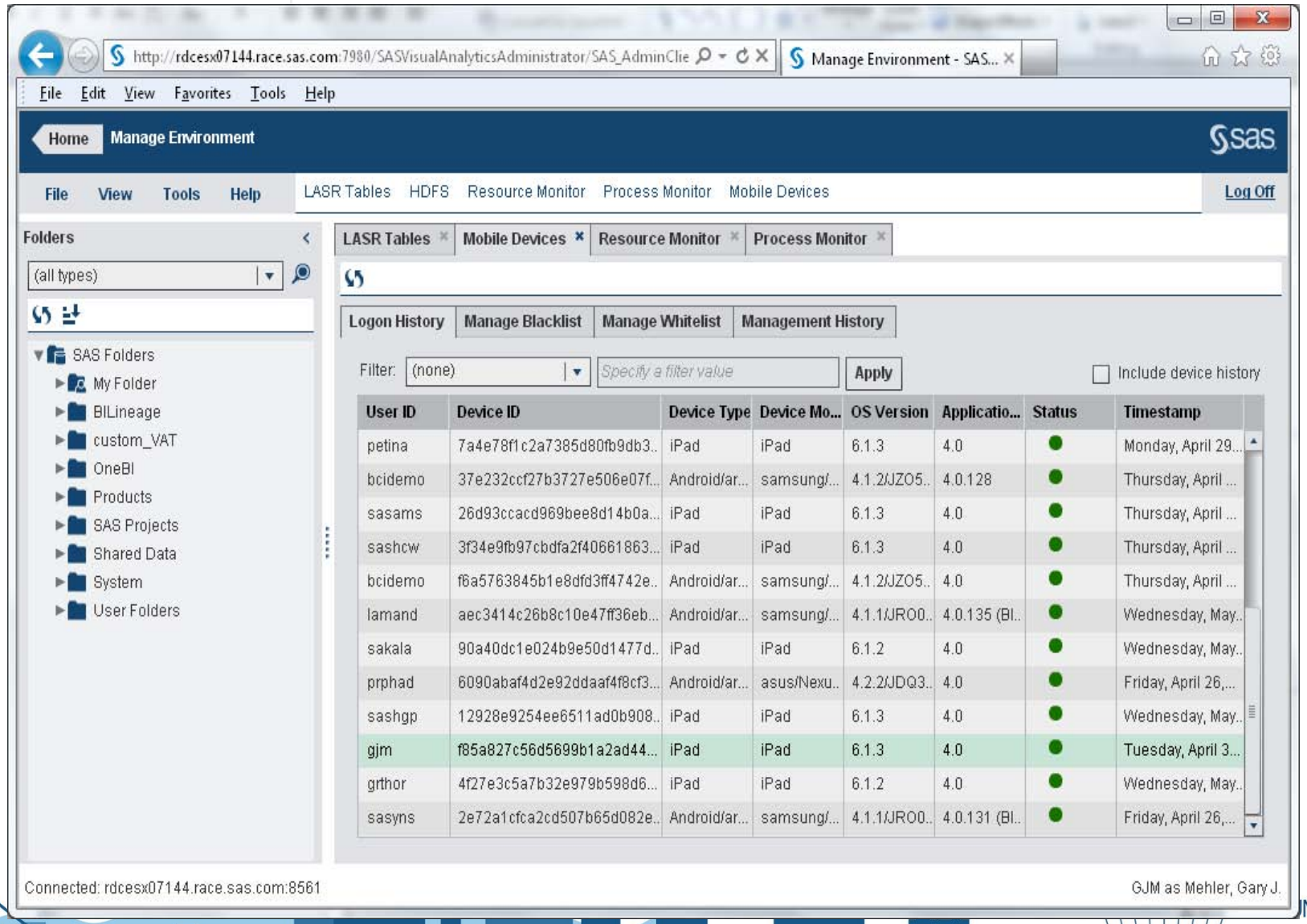
CONTROL MOBILE DEVICE ACCESS

- Monitor login history
- Can manage via blacklist
  - A user or device gets added to blacklist as needed
  - Helpful if staff leaves organization, or a mobile device is lost
- Can manage via whitelist
  - Individuals or groups are enabled to access via mobile devices
  - Individuals or devices can be removed from access list if needed

BLACKLISTING IS IN USE BY DEFAULT



Big Data

STEPS TO CONQUER COMPLEXITY

TURN CHALLENGE INTO OPPORTUNITY

- 53% leverage half of their valuable data
- 24% believe vast amounts of important data goes untapped

GAIN MAXIMUM VALUE FROM YOUR DATA

- SAS® Analytics + Powerful Visualizations + Sharing
- High Speed Performance + Cost Efficient Scalability

Source: Economist Intelligence Unit 2011 Report, Sponsored by SAS, 2011

SAS® GLOBAL FORUM
San Francisco, CA
April 28–May 1, 2013