

What is the Business Value of Your Own Automated Computing Workspace

ST03

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Agenda

- Today's Challenges
- Business and Technical Limitations
- Future: Your Own Computing Workspace
 - What is a Container?
 - Business and Technical Value
- What might the user journey and experience look like...



Current State Challenges



USABILITY

- Unintuitive
- Steep learning curve
- Siloed functions



SCALABILITY

- Performance
- Validation
- Lack of on demand compute



FLEXIBILITY

- Rigid process
- Limited access to analytical tools
- Nuanced business needs



COMPLIABILITY

- Gaps in access and controls
- Manual and error prone compliance
- Data integrity risks



TRACEABILITY

- Lack of robust end to end lineage
- Challenges reproducing results

TODAY'S LIMITATIONS

WHAT IS HOLDING US BACK?



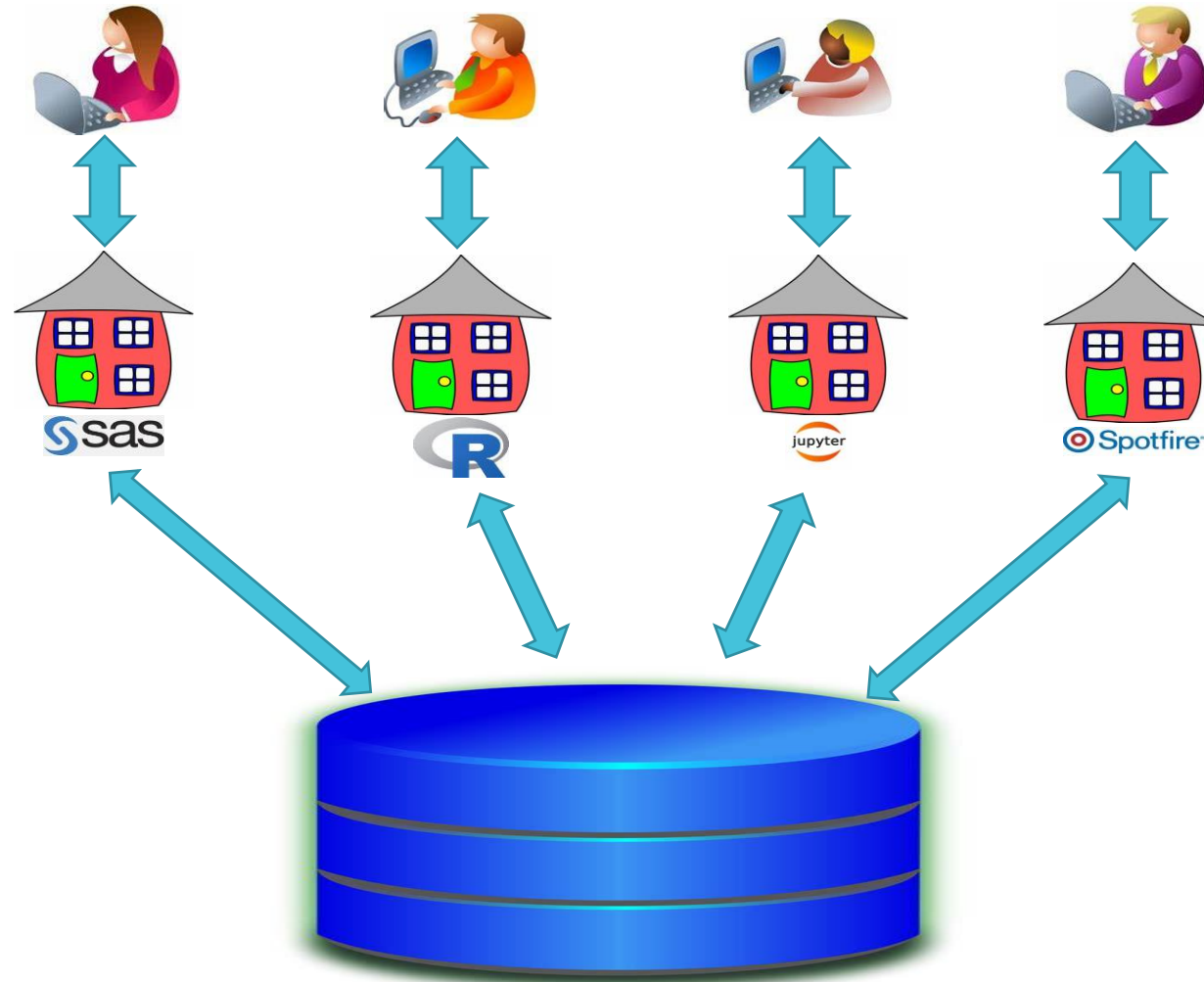
Business Limitations

- Our programs don't run fast enough or take hours/days for compute intensive jobs
- Every time I ask for a new tool or version it becomes a 6-month validation project
- I must wrestle other groups for use of my fixed computing resources

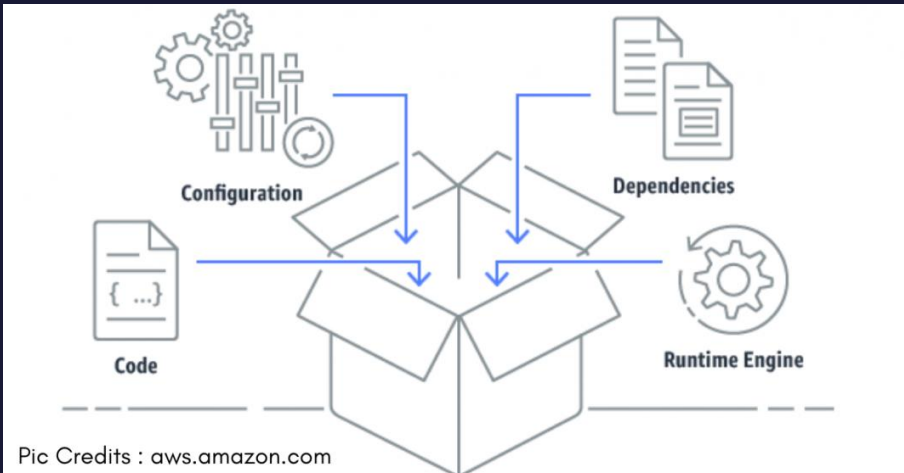
Technical Limitations

- It takes us months to secure new hardware
- My business users are always complaining about lengthy timelines to upgrade tools or versions of existing tools
- The cost for fixed compute is expensive and killing our budget

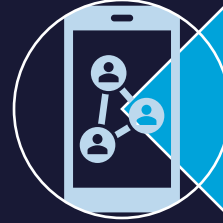
What does a Future Computing Workspace Look Like?



WHAT ARE CONTAINERS



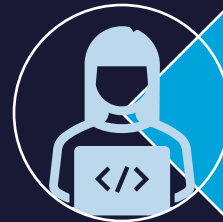
Lightweight executable packages of software



Contain everything needed to run the application



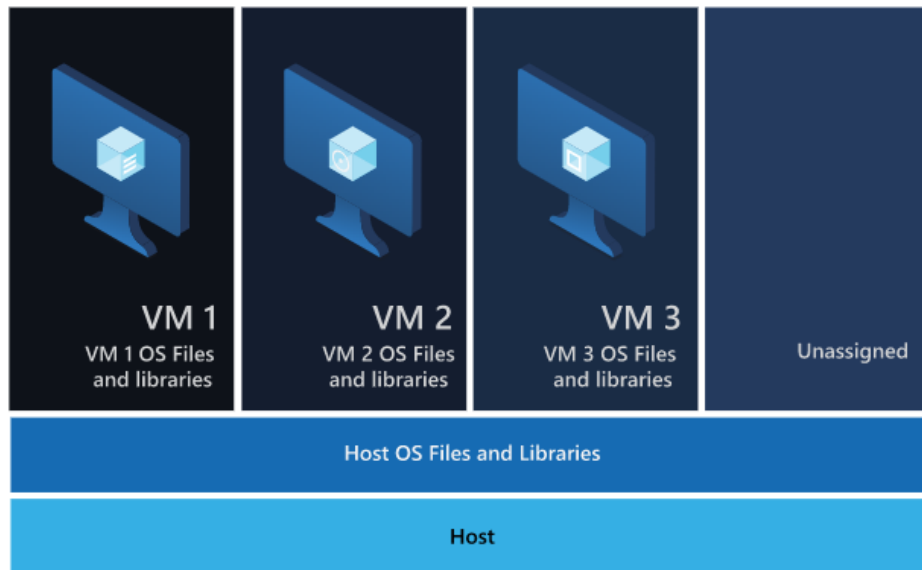
Isolated from the underlying OS



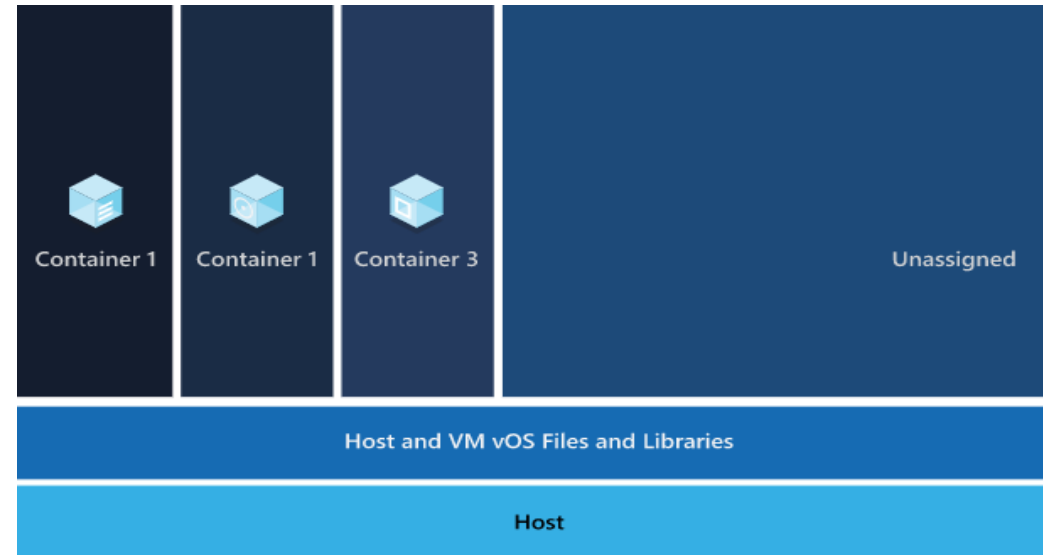
Can run a program, a workload or a specific task

Containers vs Virtual Machines (Today)

- VM virtualizes the hardware
- Container virtualizes the software and OS
- Containers are much smaller and simpler than VMs as they share the OS of the host machine
- Container start much quicker and consume far fewer resource than a VM



Virtual Machines



Containers

ADVANTAGES OF A 'CONTAINERIZED' WORLD



Business Value

- ✓ Seamless extensibility of tool and programming languages
- ✓ Access to on demand compute resources when needed
- ✓ Tool of choice accessing the same underlying secure data
- ✓ Accelerates innovation and experimentation of tools

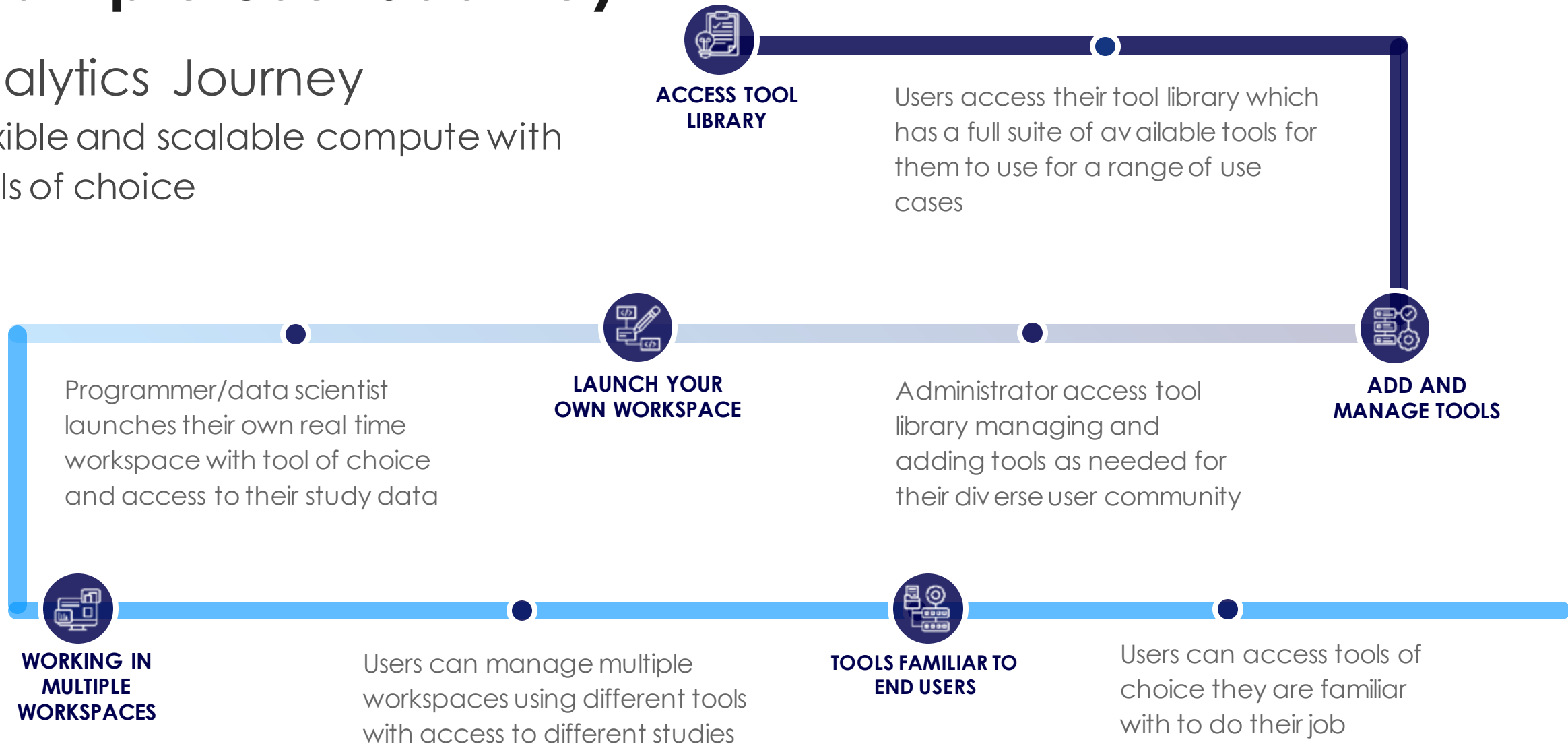
IT Value

- ✓ New workspaces for users in minutes; automate software upgrades
- ✓ Scalability, load balancing, and resilience
- ✓ Separation of storage and compute
- ✓ Efficient and cost-effective use of computing resources

Example User Journey

Analytics Journey

Flexible and scalable compute with tools of choice



User Experience: Example of a User Journey

My Workspaces

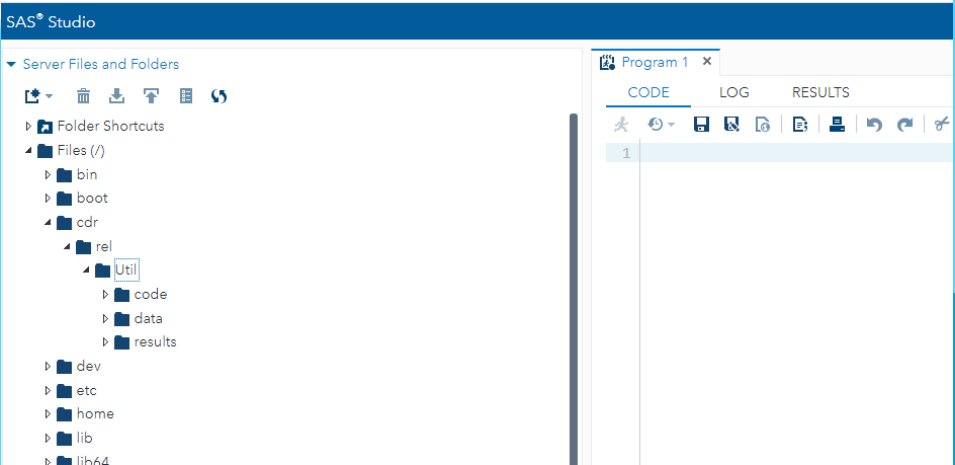
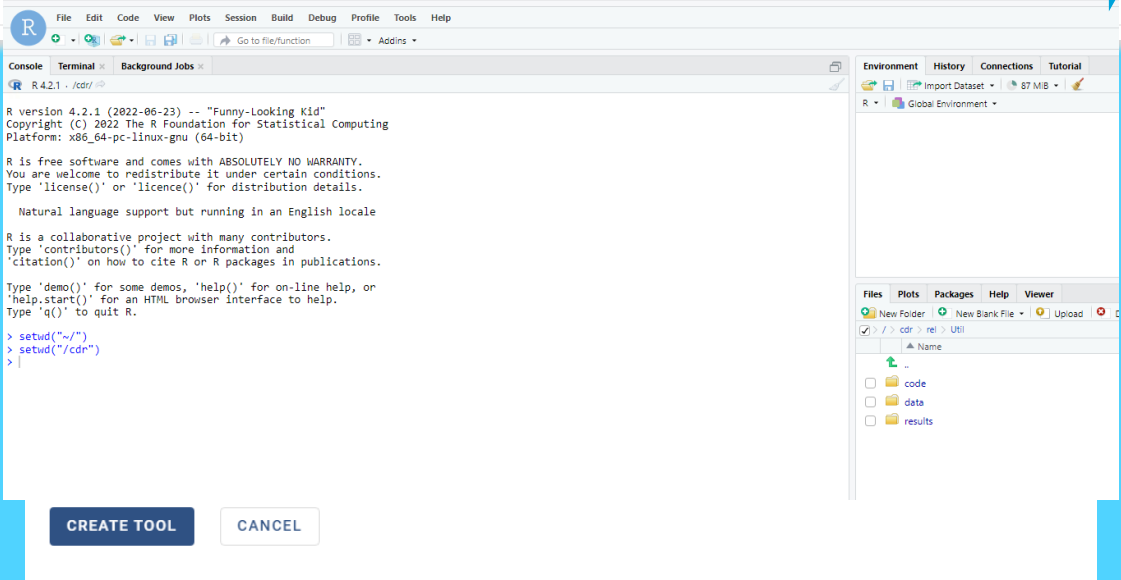
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batch job dmfrequency	SAS Studio 9.4_M7	D02-3523	09-February-2023 13:23 UTC	STOPPED	
goodproject2 - sas studio 9.4_m7	SAS Studio 9.4_M7	GoodProject2	21-February-2023 13:20 UTC	STOPPED	
ari_cpd11i - sas studio 9.4_m7	SAS Studio 9.4_M7	ARI_cpd11	25-January-2023 15:08 UTC	STOPPED	
util_jupyterhub	JupyterHub	Util	25-February-2023 23:45 UTC	STARTING	
test01	SAS Studio 9.4_M7	GoodProject2	21-February-2023 13:23 UTC	ACTIVE	

Access to familiar development tools

Tool of choice for your use case

of choice

different tools



THE PAST, PRESENT AND FUTURE



THE PAST

Private fixed compute

Inflexible scalability and resilience

Data and Compute Attached

THE PRESENT

Virtualized Machines

Minimal scalability

Limited flexibility implementing
new/updated tools

THE FUTURE

Hybrid cloud approach

Unlimited scalability and
resilience

Rapid deployment of new tools

Q&A



**The future transformed for the benefit
of everyone. Intelligent solutions
empower collaboration and
life-enhancing science**

Thank You!

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