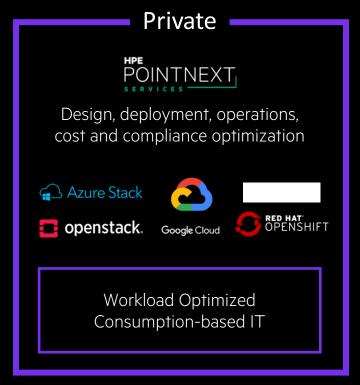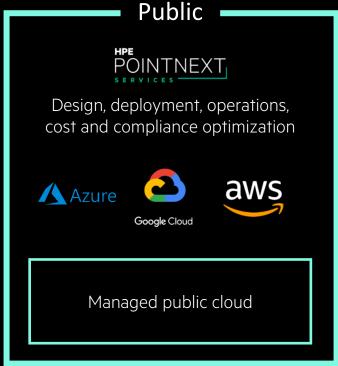# HPC AAS @HPE

Dr. Joe Landman (joe.landman@hpe.com)

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# HPE GREENLAKE HYBRID CLOUD

## HPE GreenLake Central

Choose, activate and monitor public and private cloud services in HPE GreenLake Central
Access your resources—cloud operations, KPIs, service management, cost, compliance

### Private

HPE POINTNEXT SERVICES

Design, deployment, operations, cost and compliance optimization

Azure Stack    Google Cloud    RED HAT OPENSHIFT
openstack

Workload Optimized Consumption-based IT

### Public

HPE POINTNEXT SERVICES

Design, deployment, operations, cost and compliance optimization

Azure    Google Cloud    aws

Managed public cloud

## One cloud experience

Your right mix, with Cloud Ops for private and public clouds—multicloud, multi stack

## We operate your clouds

Cloud native automation: Monitored, administered and managed
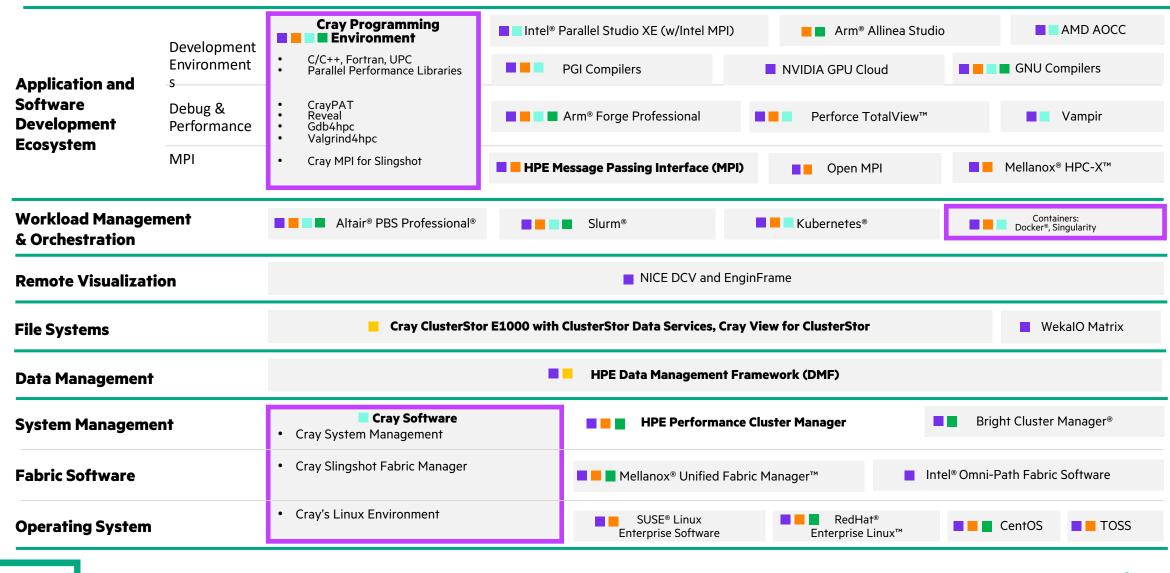
## We optimize your clouds

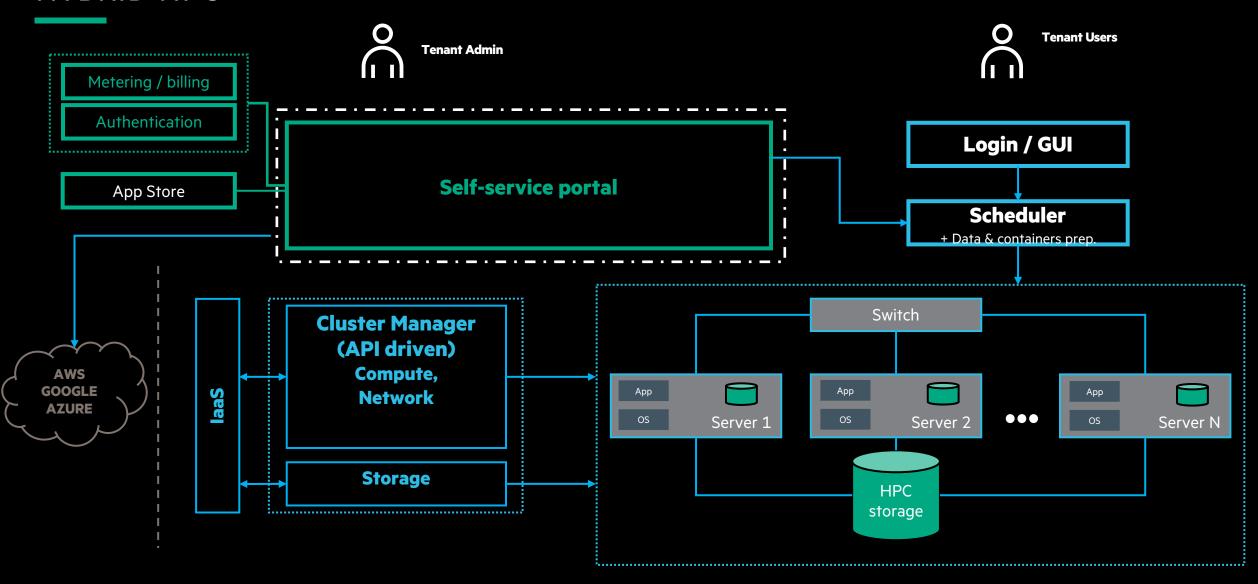Cost, compliance, security and performance monitoring and management

## Consumption enabled

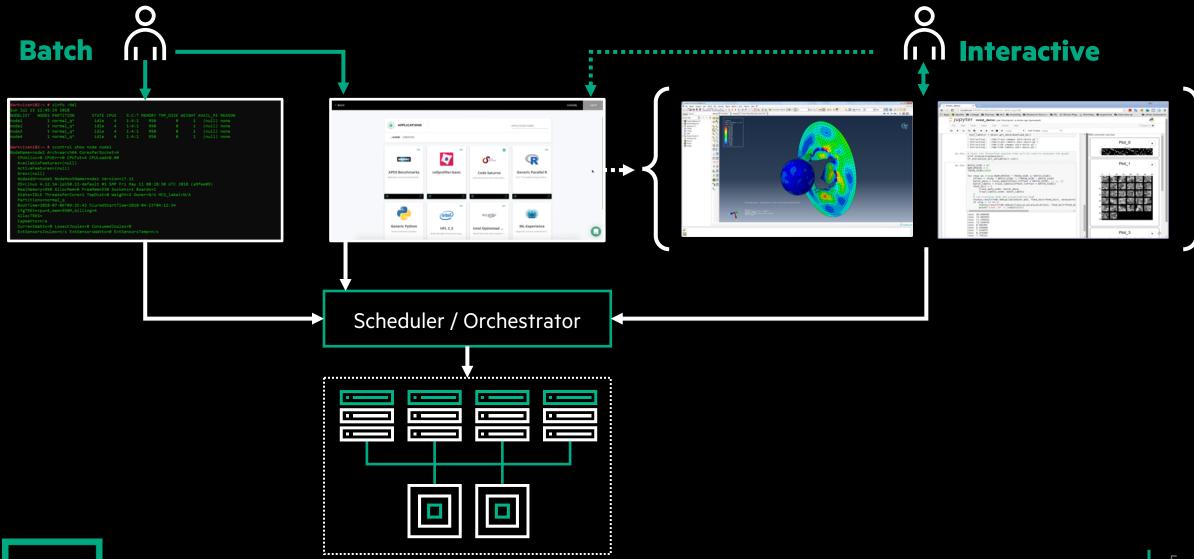Enabling consumption on premises, managing your hybrid experience

# HPE HIGH PERFORMANCE COMPUTING SOFTWARE PORTFOLIO (2020)

## Application and Software Development Ecosystem

### Development Environments

**Cray Programming Environment**
- C/C++, Fortran, UPC
- Parallel Performance Libraries

Intel® Parallel Studio XE (w/Intel MPI)  Arm® Allinea Studio  AMD AOCC

PGI Compilers  NVIDIA GPU Cloud  GNU Compilers

### Debug & Performance
- CrayPAT
- Reveal
- Gdb4hpc
- Valgrind4hpc

Arm® Forge Professional  Perforce TotalView™  Vampir

### MPI
- Cray MPI for Slingshot

**HPE Message Passing Interface (MPI)**  Open MPI  Mellanox® HPC-X™

## Workload Management & Orchestration

Altair® PBS Professional®  Slurm®  Kubernetes®  Containers: Docker®, Singularity

## Remote Visualization

NICE DCV and EnginFrame

## File Systems

**Cray ClusterStor E1000 with ClusterStor Data Services, Cray View for ClusterStor**  WekaIO Matrix

## Data Management

**HPE Data Management Framework (DMF)**

## System Management

**Cray Software**
- Cray System Management

**HPE Performance Cluster Manager**  Bright Cluster Manager®

## Fabric Software
- Cray Slingshot Fabric Manager

Mellanox® Unified Fabric Manager™  Intel® Omni-Path Fabric Software

## Operating System
- Cray's Linux Environment

SUSE® Linux Enterprise Software  RedHat® Enterprise Linux™  CentOS  TOSS

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■ **HPE Apollo, HPE ProLiant DL, HPE SGI**  ■ **HPE Apollo 70**  ■ **Cray Supercomputers**
■ **Cray ClusterStor**  ■ **Cray CS500 (Fujitsu A64FX)**

# HYBRID HPC

**Tenant Admin**

**Tenant Users**

Metering / billing

Authentication

App Store

**Self-service portal**

**Login / GUI**

**Scheduler**
+ Data & containers prep.

AWS
GOOGLE
AZURE

IaaS

**Cluster Manager
(API driven)
Compute,
Network**

**Storage**

Switch

App

OS

Server 1

App

OS

Server 2

App

OS

Server N

HPC
storage

# END-USERS

**Batch**

**Interactive**

Scheduler / Orchestrator

# THANK YOU

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## ENGAGE TODAY: HPC-EAP@HPE.COM