Nimbis TSS Cloud Execution Environment

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Why Cloud

Lower the Barriers to Entry
- Design environments preconfigured
- Dynamic, flexible storage and compute

Leverage IT Innovations at Commercial Timescales
- FGPA enabled instances
- GPU instances
- Deep learning APIs
- Multiple hi-performance database engines

Collaborative Environment
- Project members share a common workspace
- Individual access control to IP, foundry PDKs

Cloud Access to DoD Specific Resources
- Cadence Palladium Z1 Emulator
### TSS Supported Cloud Environments

#### TRUSTED SILICON STRATUS

Joint Federated Assurance Center Distributed Transition Environment

<table>
<thead>
<tr>
<th>Public Cloud</th>
<th>Restricted Cloud</th>
<th>Government Cloud</th>
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<tbody>
<tr>
<td>Commercial and Academic Use</td>
<td>Developmental ITAR U.S. Persons Only</td>
<td>Government Operational U.S. Persons Only</td>
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<tr>
<th><a href="http://www.trustedstratus.org">www.trustedstratus.org</a></th>
<th><a href="http://www.trustedstratus.com">www.trustedstratus.com</a></th>
<th><a href="http://www.trustedstratus.us">www.trustedstratus.us</a></th>
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- **Non-US Persons OK**
- **Two-Factor Optional**
- **Target Users**
  - Academia
  - Commercial

- **US Persons Only (ITAR)**
- **Two-Factor Required**
- **Target Users**
  - Contractors
  - Commercial

- **US Persons Only (CUI)**
- **CAC Card or Equivalent**
- **Target Users**
  - Government
  - Contractors
TSS Current User Base

Pilot Activity
- ~200 users
- 2 Multi-site advanced node tapeouts

Growing User Community with increased maturity and awareness
Cloud Execution Environment

Multi-site collaboration

- Site 1
- Site 2

Dynamic resources

- Scale resources as needed for architectural trade studies
- Clone preconfigured development environments
- Instances with root (sudo)

Shared Environment

- Rapid cloud orchestration
- Isolated from other performers
- Shared elastic resources
Building Projects on the Cloud
(Cloud Orchestration)

Project Owner
- Create project
- Configure Licensing
  - Bring your own
  - Subscribe to existing
- Invite users to the project
- Provision shared resources
  - Elastic simulation farm
  - GIT server
  - Palladium Access

Project Members
- Accept invitation
  - Create account, if needed
- Create repos
  - Shared or private
  - Upload data to them
- Create instance(s)
  - Select machine type
  - Select drive size
- Attach repo(s) to instances
- Launch instances
Use Case: Dev Environments

User configures a Gnome instance with root (sudo) rights

User customizes the instance for project development

Nimbis creates a snapshot of the configured environment

Project users can now launch this new image type from custom catalog

- AFX Dev (User 1)
- AFX Dev (User 2)
- AFX Dev (User 3)
- ....
Is my data safe on the cloud?

Security & compliance is a shared responsibility

Customers have their choice of security configurations **IN** the Cloud

AWS is responsible for the security **OF** the Cloud

Performers are responsible for:

- Customer applications & content
- Platform, Applications, Identity & Access Management
- Operating System, Network, & Firewall Configuration
- Client-side Data Encryption
- Server-side Data Encryption
- Network Traffic Protection

AWS Foundation Services:

- Compute
- Storage
- Database
- Networking

AWS Global Infrastructure:

- Availability Zones
- Regions
- Edge Locations
Flexible and Elastic Resources

AWS Instance types

Subject to constraints from the project owner, users can spin up as many instances as needed, of whatever type best suits the job at hand, or take advantage of dynamically scalable compute farms.

Instances have varying combinations of resources
• # and type of cpus
• Amount of RAM
• Storage size, type, and speed
Questions?