

GOALS

Elevate the testbed capabilities to support verification and validation of cutting-edge technology to support the broad CREDC mission. Bringing in flexibility, usability, remote management, enhanced provisioning, new EDS capabilities, and scalability to advance the science of cyber-physical experimentation.

PROJECTS

Remote Management

Mid-Term Effort



Summary
Implement a remote access and management strategy that supports full testbed accessibility

Goals
Lower the barrier for external members to spin up experiments in the testbed environments

- Benefits**
1. Remote management of both cyber and physical aspects of an experiment
 2. Experimentation resource for the EDS community

Composable Infrastructure

Mid-Term Effort



Summary
Implement a base infrastructure framework for virtual composed systems

Goals
Lower the barrier to experiments by creating infrastructure and representative architectures for experiments to decrease spin-up costs for V&V

- Benefits**
1. Base infrastructure framework for provisionable infrastructure
 2. Reference architecture libraries and components
 3. Experimentation resource for the EDS community

Physical Asset Provisioning

Mid-Term Effort



Summary
Implement physical asset provisioning for testbed assets

Goals
Provide a framework for provisioning general and domain-specific assets in the testbed in both cyber and physical vectors

- Benefits**
1. Base infrastructure framework for physical provisionable infrastructure
 2. Profiles for provisioning physical assets
 3. Experimentation resource for the EDS community

Broader EDS Capabilities

Mid-Term Effort



Summary
Implement domain-specific capabilities to support and enable new research

Goals
Bring in capabilities for oil and gas experimentation and expand power grid capabilities as needed

- Benefits**
1. Increased capabilities in the oil and gas domain
 2. Experimentation and resource knowledge base for the EDS community

Usability

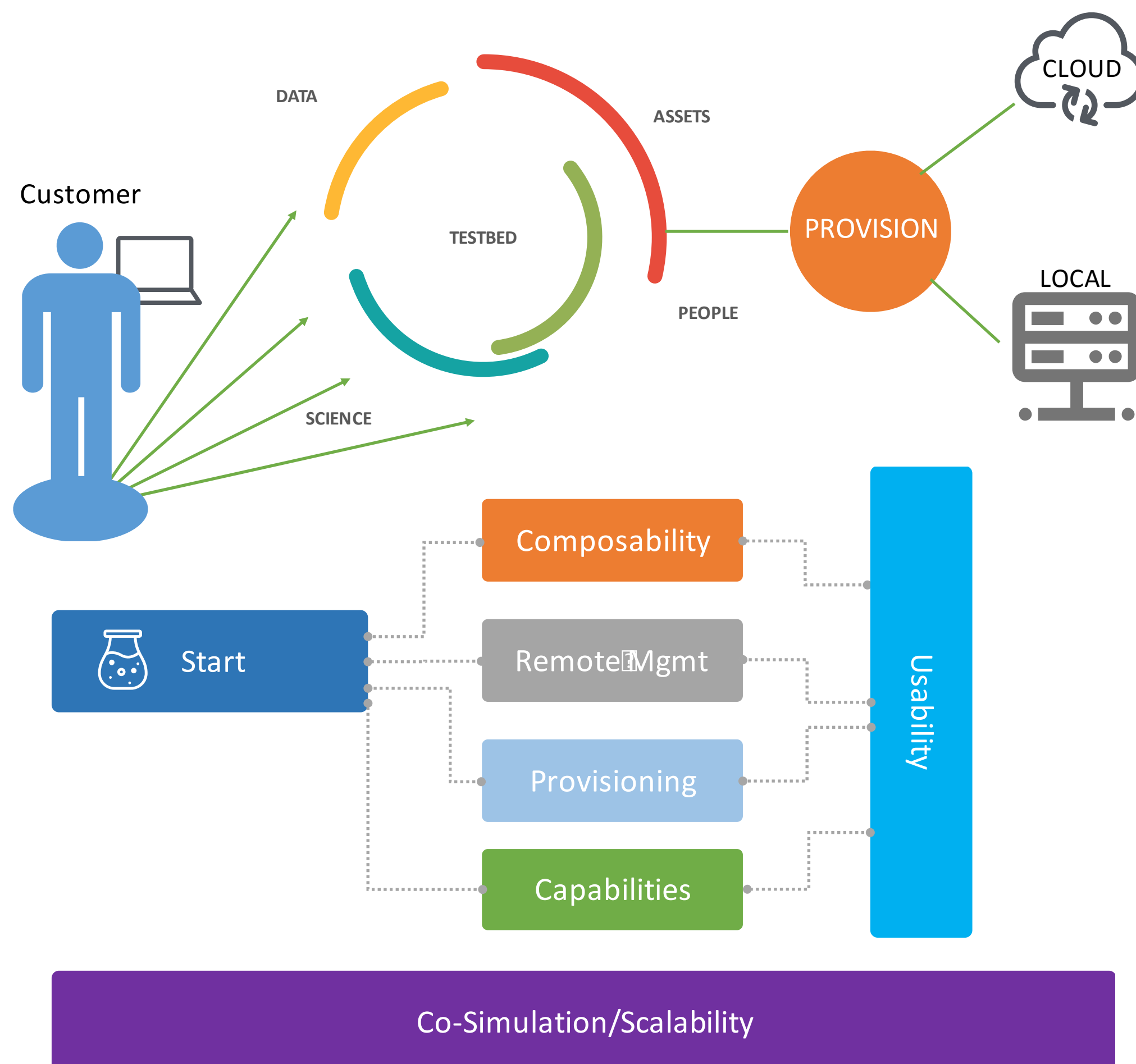
Mid-Term Effort



Summary
Increase the usability and further decrease barriers to entry for experimentation

Goals
Implement non-intrusive resource monitoring, data collection, health, knowledge bases, libraries, and resources that can be optionally leveraged for any experiment

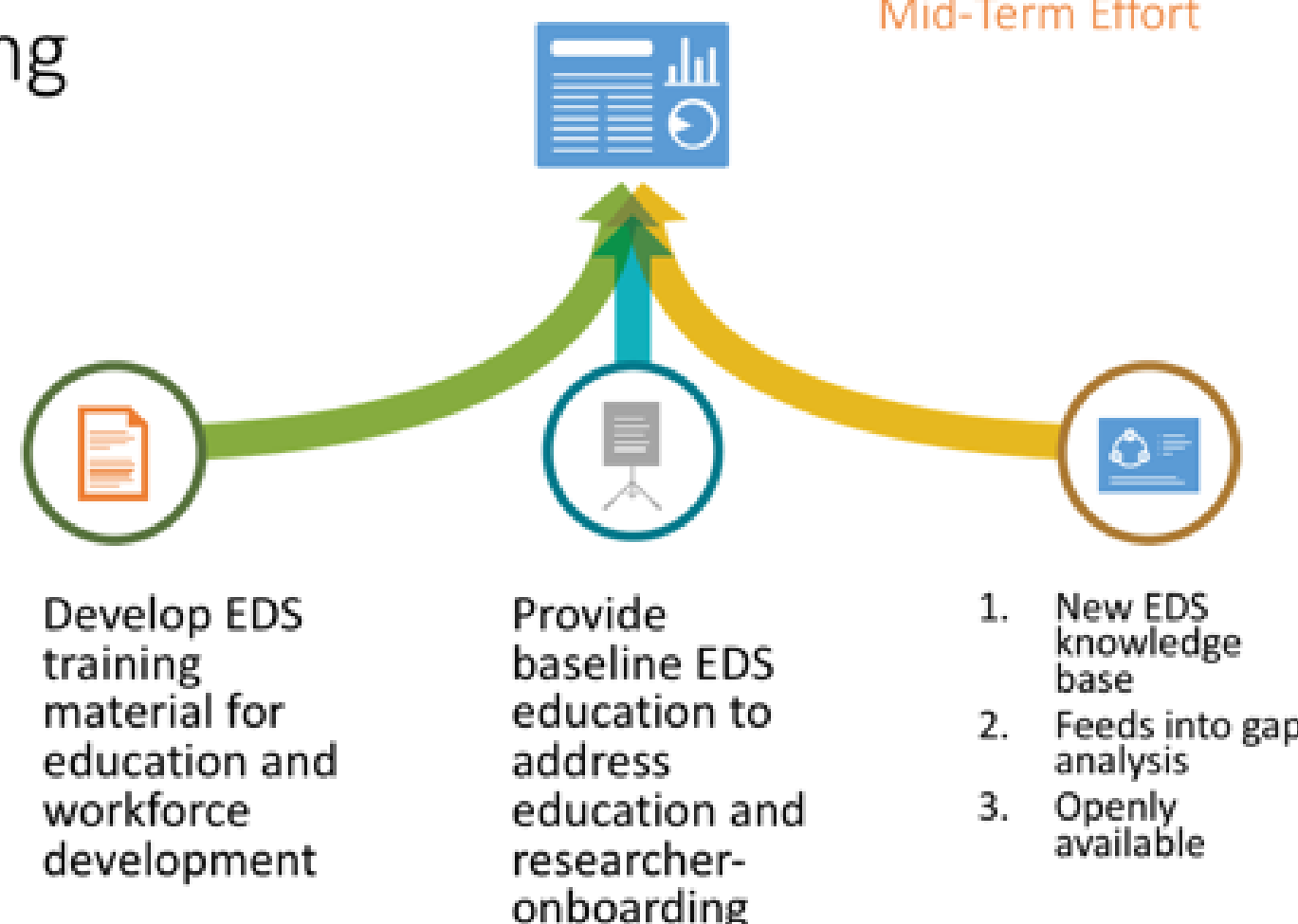
- Benefits**
1. Lightweight monitoring and data collection framework integrated into testbed experimentation
 2. Means by which to increase rigor of verification and validation efforts
 3. Experimentation knowledge base for the EDS community



EDUCATION/TRAINING

EDS Domain Training

Mid-Term Effort



STATUS

- Remote management enhancements completed providing robust remote access to the facility
- Composability advancing
- Broader EDS capabilities planning discussions
- Co-simulation foundational work started to enable scalable and variable environments to meet verification and validation needs
- EDS domain training being explored for researcher use

INDUSTRY INTERACTION

- Active engagement with various testbed researchers
- Active engagement and tool/knowledge exchange with companies and their facilities
- Scientific discussions around capability enhancement with other national efforts such as the DOE National Labs