



Overview | EIS Council

Mission

Hosting national and international collaboration on resilience and whole community sustainment, restoration and response planning

Addressing “Black Sky” events: National and global scale complex catastrophes

Status

Participants: Most federal agencies, State Emergency Mgmt, ~ 20 infrastructure, resource and service sectors: U.S., U.K., Israel, ...

EPRO SECTOR

All-sector collaboration building coordinated Black Sky systems engineering doctrine / playbooks

EARTHEX

Global

All-sector

2017: 12 lanes, 500 org's, 3000 participants, 9 nations, 40 States

2018: 32 lanes, 2000 org's, 10000 participants

Black Sky

Sector specific

Table top, video-enabled exercises, planning workshops

BSX

Building Black Sky-compatible all-sector, interoperable, emergency communication, independent of national telecom infrastructure
Host for GINOM

GINOM

Developing global, all-sector infrastructure digital twin enabling situational awareness and providing real-time decision support

Overview | GINOM: Need and Opportunity

Need

Cross-sector hyper-connectivity leads to societal collapse in long, subcontinent scale blackout

Opportunity

Infrastructure network simulation enables situational awareness and supports decision making for effective restoration

- **Enabling Situational Awareness**
 - Large scale, interactive exercises
 - Corporate investment guidance
 - Resilience planning
- **Supporting Decision Making**
 - Real time operations information
 - Status projection through simulation



Overview | GINOM: Multi-Simulation Approach

Multi-Sector Multi-Simulation User-Facing Tool

Multi-Sector

GINOM integrates multiple infrastructure sectors into a large-scale virtual infrastructure network. Sector modeling is handled by plug-in simulation modules.

Multi-Simulation

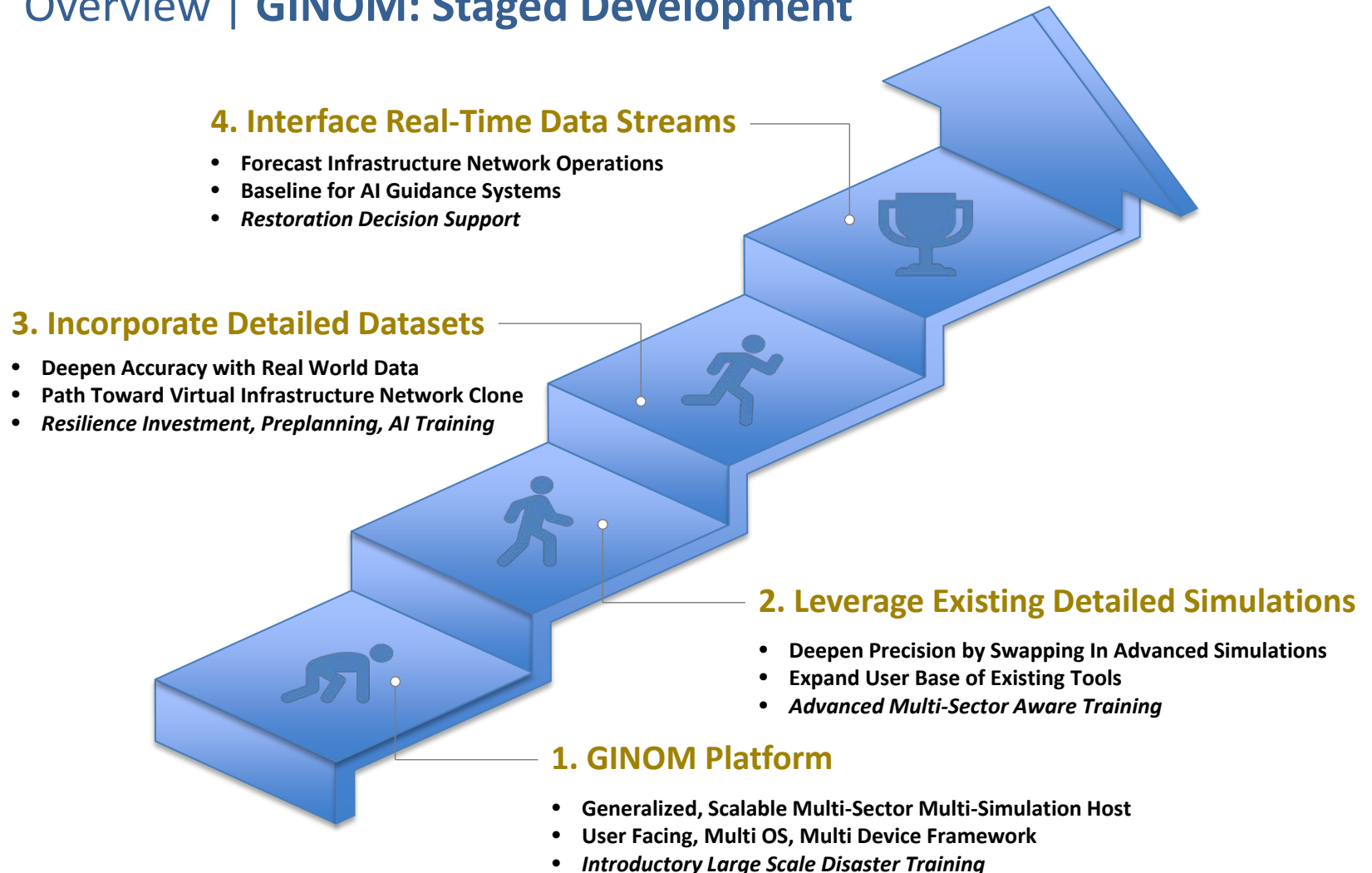
Simulation modules will leverage existing detailed simulation packages from our partners. Where these are not available, simpler heuristic packages will be used.

User-Facing

Initially the tool will serve as a disaster exercise and training platform. As available detailed simulations and datasets are integrated, the tool will mature into a deep decision support system.



Overview | GINOM: Staged Development



Overview | GINOM: Design

Convenience of Multi-Device – Power of the Cloud

- GINOM combines multiple sector specific simulations, running on multiple servers into a simulated world
- Multiple simulated worlds run simultaneously in the cloud
- Lightweight apps for desktop and mobile devices act as simple interfaces to these complex simulated worlds
- Multiple user devices can interact with the same simulated world for collaboration or training purposes



Development | Engines

GINOM Decision Support Tool

SpatialOS® by Improbable

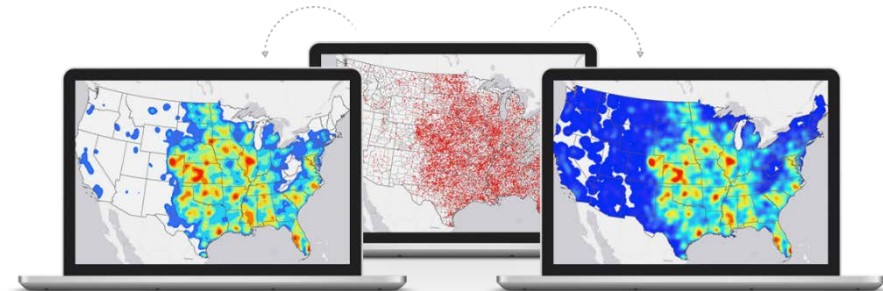
- Infinite scalability
- Decentralized ECS-Worker architecture
- Automatic load balancing
- Wide ranging development interfaces
- Developer support as primary objective



GINOM Database

ArcGIS® by ESRI

- Emergency data interoperation
- Rich visualization options
- Deep analytics tools
- First-in-class platform for utilities
- Extensive training resources





GINOM

Demo | Current Status

