

Harnessing Massive Computing Power

Capt John Kresho

United States Marine Corps

9 Feb 2001

How to Answer Questions of Interest

- Large Models
 - Hours to Setup
 - Many Details
 - Long Run Duration
 - Produce Single Point of Data
- Data Farming with Agent-Based Models(Distillations)
 - Easy to Setup
 - Short Run Duration
 - Produce Many Data Points
 - “Grow” Data quickly

How to Grow Data

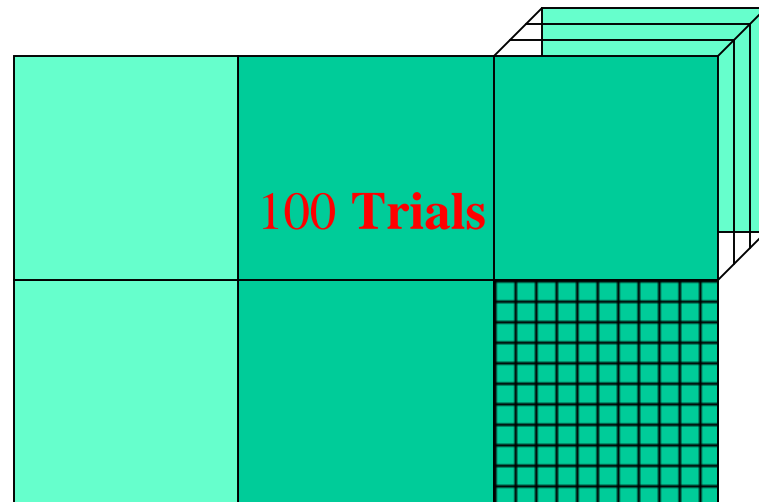
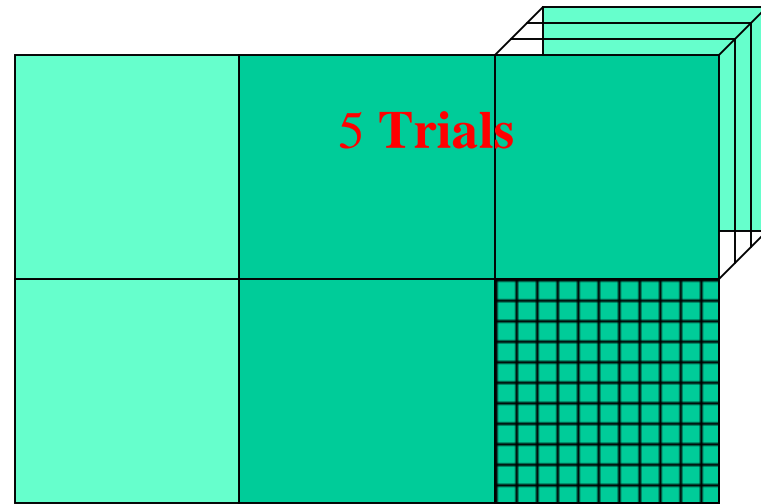
- Execute distillation varying initial conditions and parameters.
- Explore resultant data space using visualization/analysis tools
- Grow data by expanding or increasing the resolution of initial conditions and parameters. Grow Data by:

Adding dimensions

Increasing fidelity

Expanding bounds

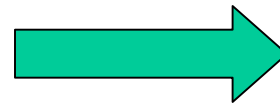
Increasing trials



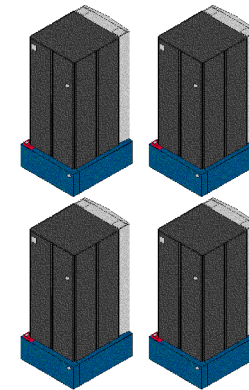
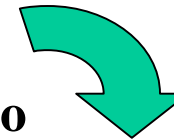
Finding Computer Power

Option 1

Generate scenario
and explore
appropriateness



Send scenario
parameter
specifications
to MHPCC



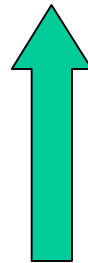
Many,
Many
Runs

IBM Mainframe



2-4 days
turnaround

Modify
Parameters
based on
results



Finding Computer Power

Option 2

