

Academic Distributed Collaborative Engineering Project

Tord Dennis, GT

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Objective

- **Develop a methodology to foster distributed collaborative engineering**
- **Demonstrate current technologies integrating CAD/CAE/CAM/PDM**
- **Promote collaboration between students at engineering institutes**

Participants

- **Kettering University**

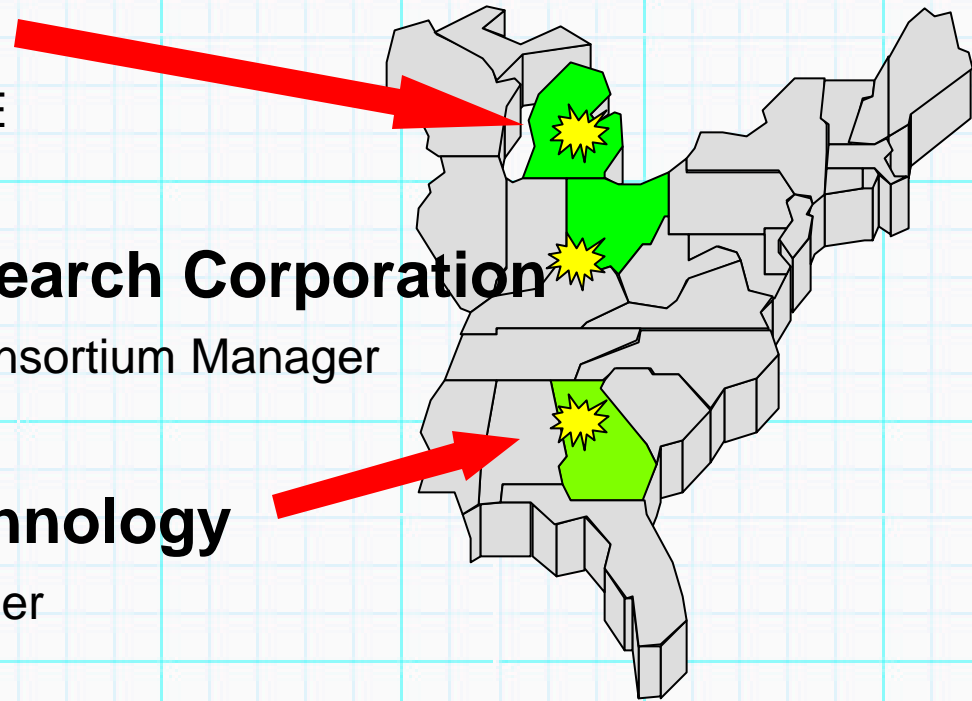
- Dr. Paul Zang, Professor of ME
- 4 Senior ME undergraduates

- **Structural Dynamic Research Corporation**

- Tom Sigafoos, Educational Consortium Manager
- 1 co-op student

- **Georgia Institute of Technology**


- Tord Dennis, Research Engineer
- 4 Senior ME undergraduates



Project Description

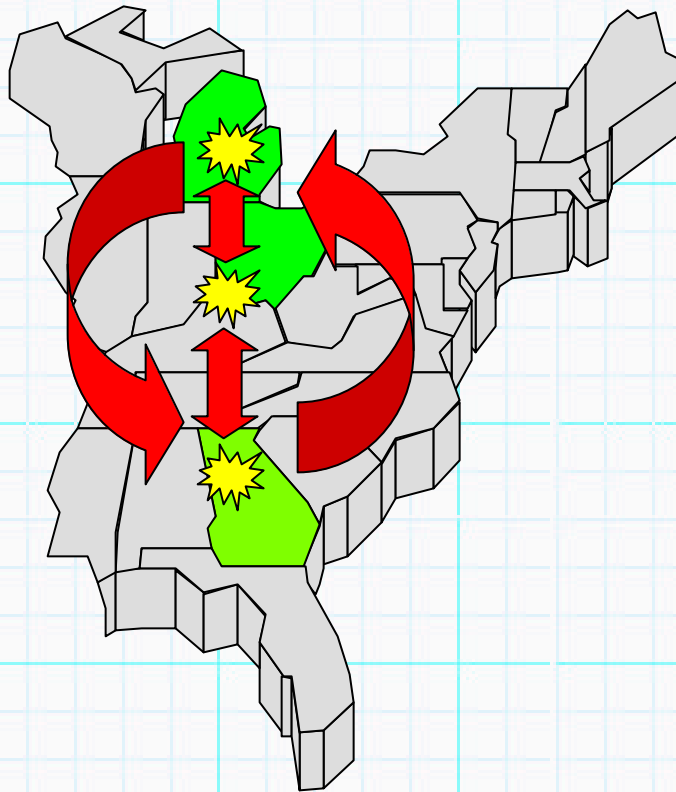
- Parametrically model two systems:
 - **Portable Circular Saw**
 - + 2 students at GT build internal parts
 - + 2 students at KU build external parts and assemblies
 - **Portable Power screw driver**
 - + 2 students at GT build external parts and assemblies
 - + 2 students at KU build internal parts

Project Description (software)

- **I-DEAS 8m2 (CAD/CAE/CAM/PDM)**
 - UNIX (SUN, SGI)
 - Windows NT & 2000
- **Metaphase 3.2 (PDM)** 
 - SUN server at GT
 - e!VISTA (Netscape & MS Internet Explorer)
- **Net Conference**
 - email
 - MS Net meeting
 - SUN forum
- **Rapid prototype**



Implementation (phase 1)

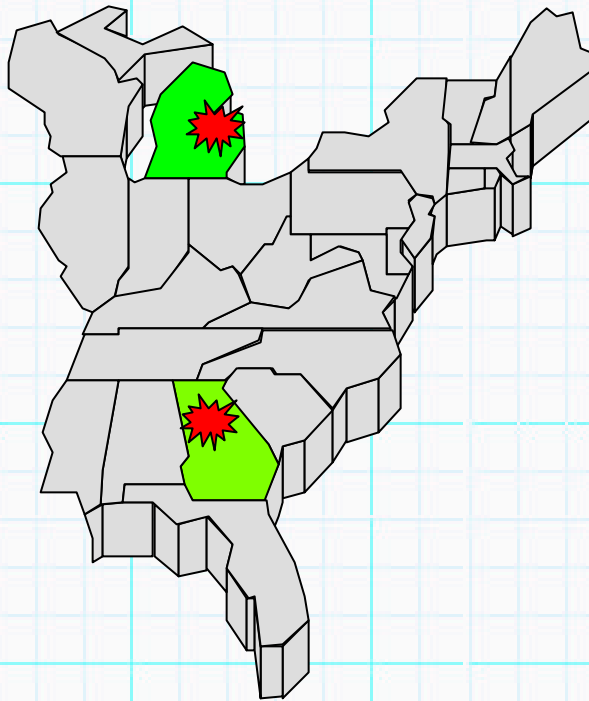


Planning stage



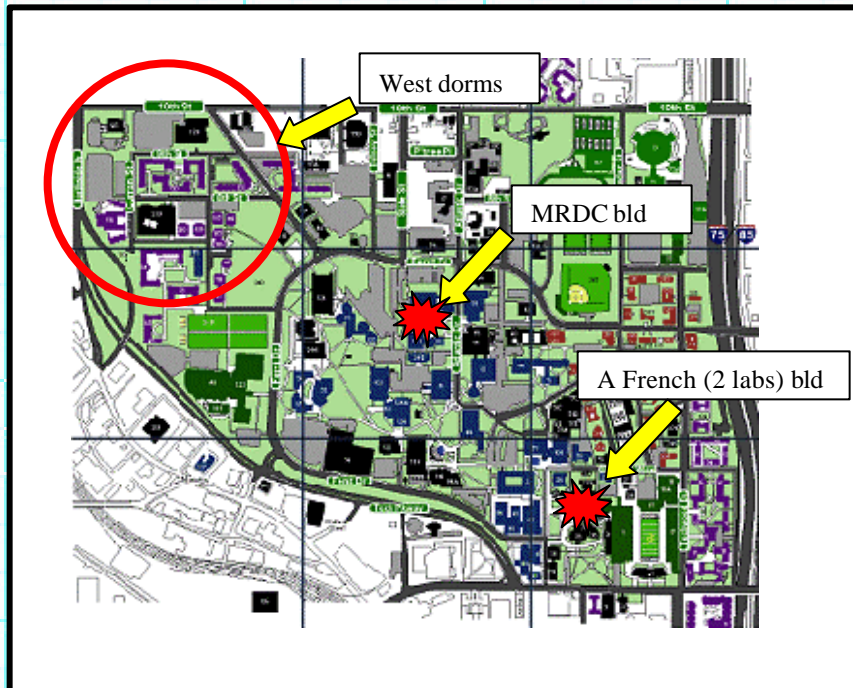
- assign tasks
- set project guidelines
- set project milestones
- set deliverables dates

Implementation (phase 2)



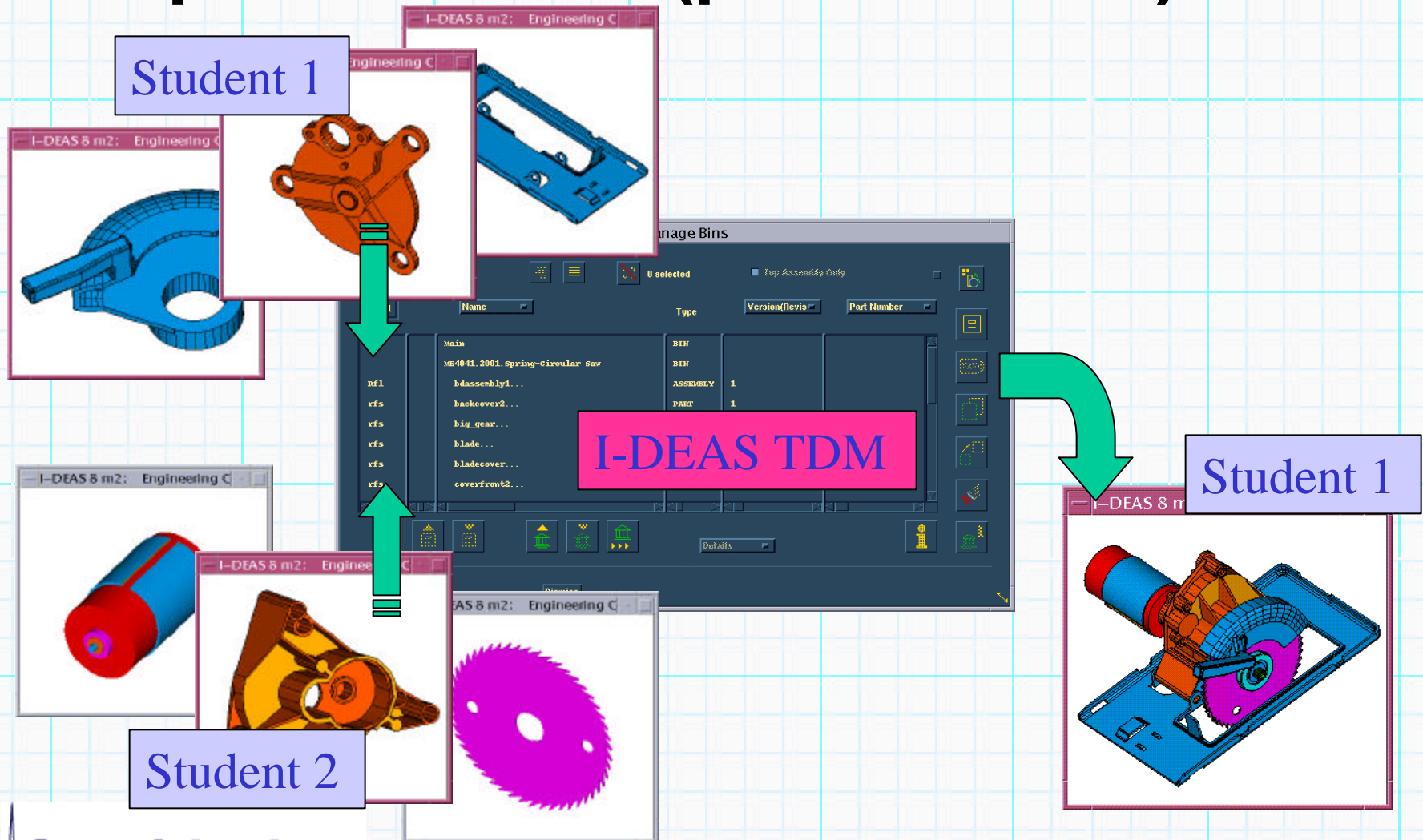
**Students build individual parts at their schools.
Use I-DEAS TDM to exchange data locally.**

Implementation (phase 2 - GT)

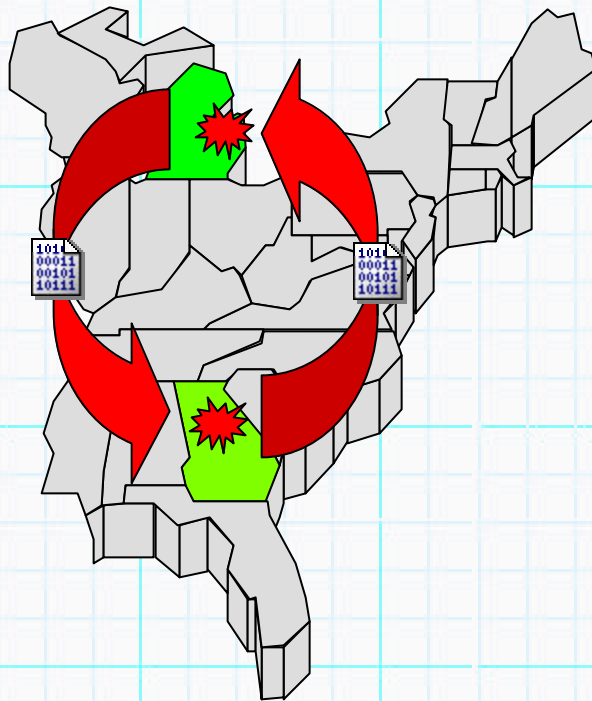


**2 UNIX labs in the A. French Bld,
1 Windows NT lab in the MRDC
Bld and student computers
networked to a central I-DEAS
TDM server by T1 ethernet**

Implementation (phase 2 - GT)



Implementation (phase 3)



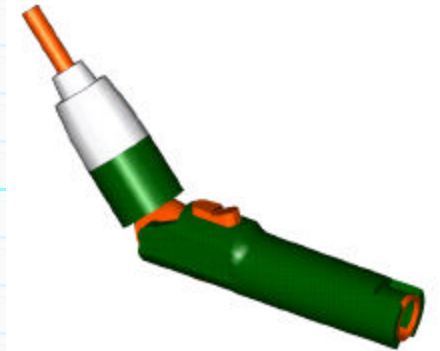
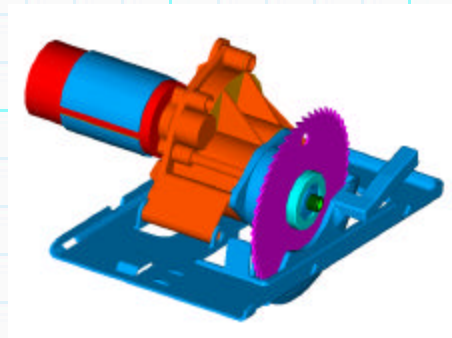
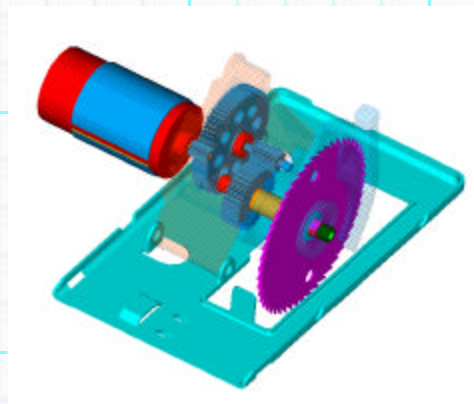
I-DEAS data is exported from TDM and uploaded into Metaphase using e!Vista.

I-DEAS data is downloaded from Metaphase using e!Vista and imported into TDM.

Assemblies are completed.

Summary (1)

Completed assemblies in distributed collaborative environment



Summary (2)

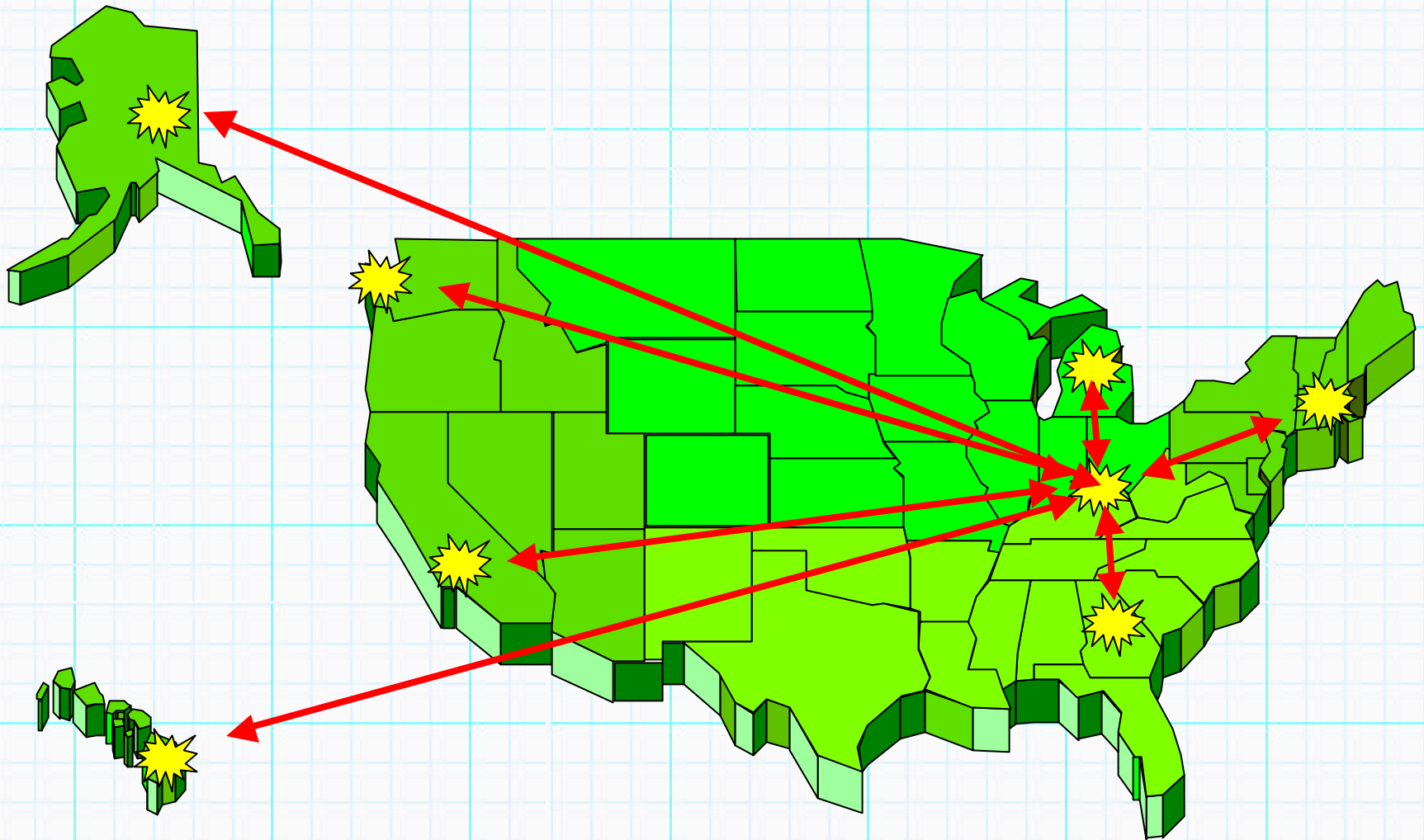
Need more “real-time” interaction between students :

- **more interactive file exchange (I-DEAS Enterprise?)**
- **centralized data server**
- **video conference/chat server**
- **synchronize schedules**
- **more interaction between students**

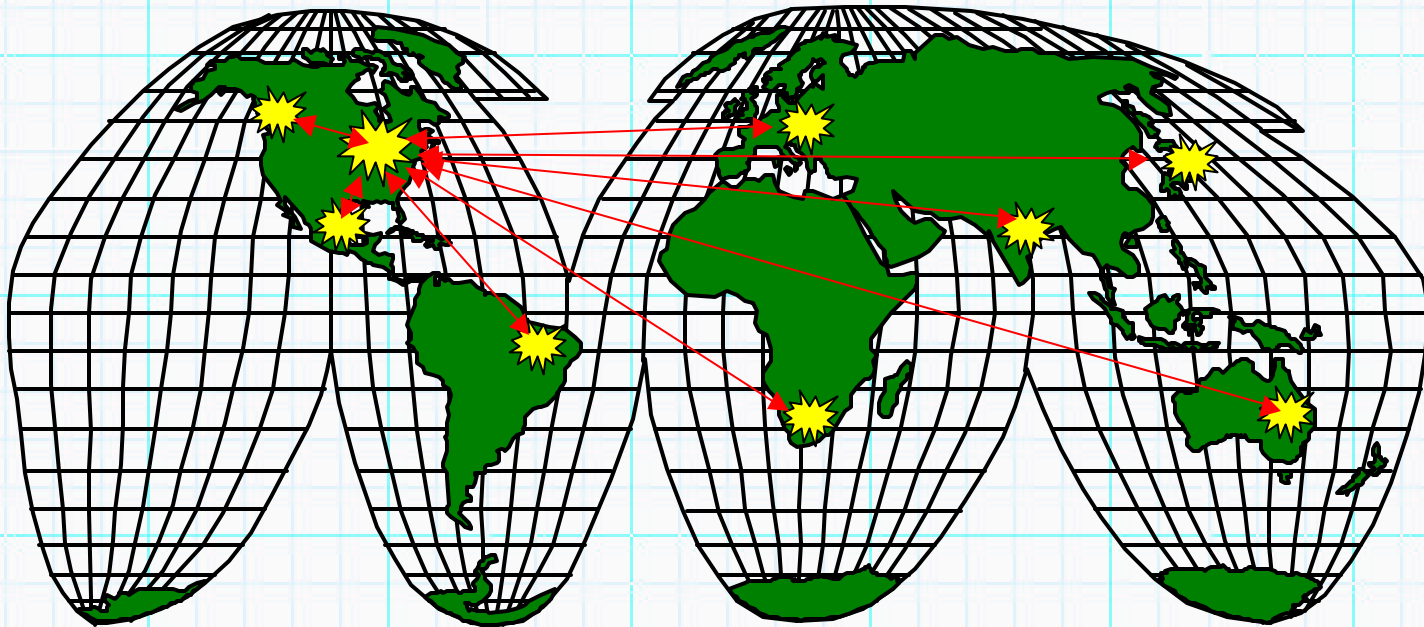
Future

- **Involve other Institutions**
- **Involve more Industry Partners**
- **Centralized File Server**
- **Interactive Internet Communication**
- **Include other CAD packages (e.g. Unigraphics)**

Expand Collaboration Projects Nationally...



...and Internationally



Involve schools designated by SPACE Clients

Demonstrate Collaboration Projects at:

- **ICCON - Nashville, June 11 - 15**
- **ASEE 2001 National Conference -
Albuquerque, June 25 - 27**
- **SEFI / ASEE International Symposium -
Berlin, September 15 - 18**
- **Trade Shows and Roadshows**