



## Solution Technique

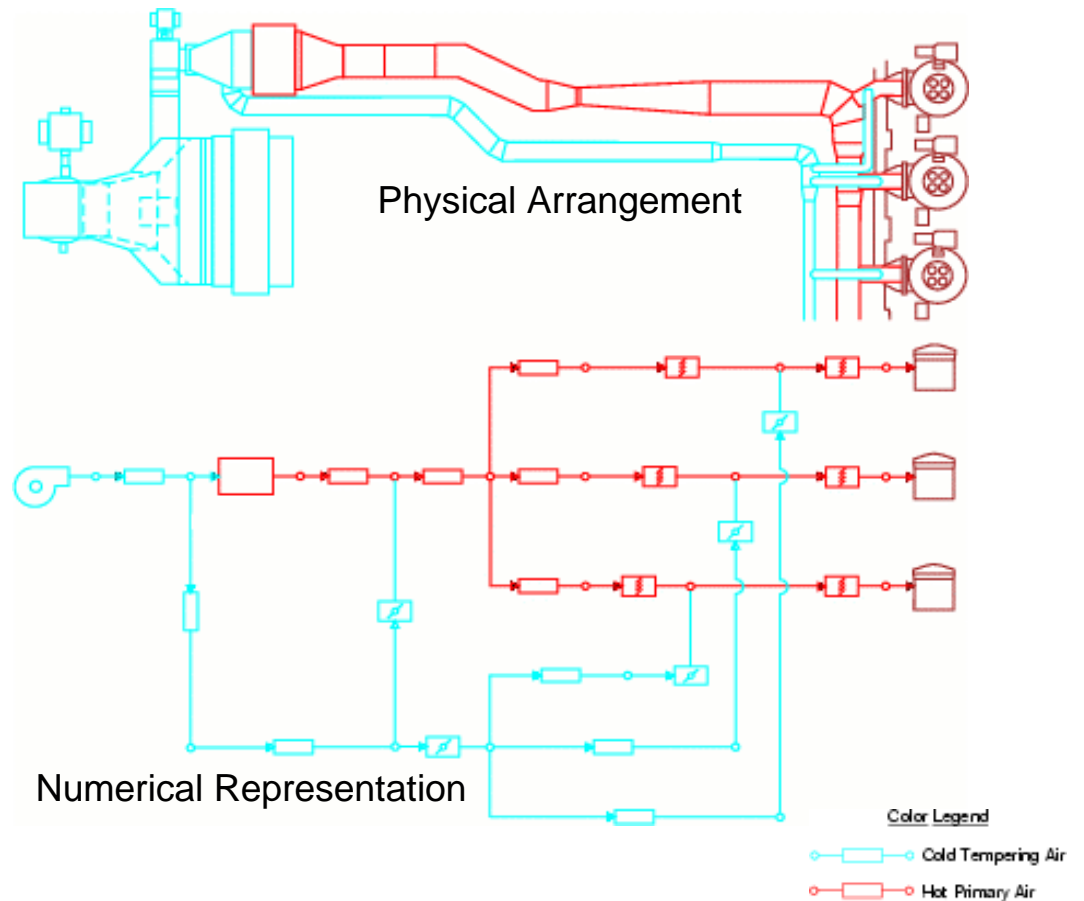
- Iterative method – start with initial guess of system solution and minimize error function with successive iterations
- Solve for mass flow rate through system and pressure drop (or rise) for each connector
- May run in design mode and solve for geometrical parameters (e.g. cross-sectional area) with fixed mass flow and pressures



## Program Capabilities

- Heat Transfer
- Chemical Reactions
- Multi-Phase Flow
- Compressibility
- Choked Flow

## Sample Network: Pneumatic Network Balance



# Physics

- Encapsulate standard or proprietary heat transfer and mass flow properties
- User extensible

## Sample Connectors

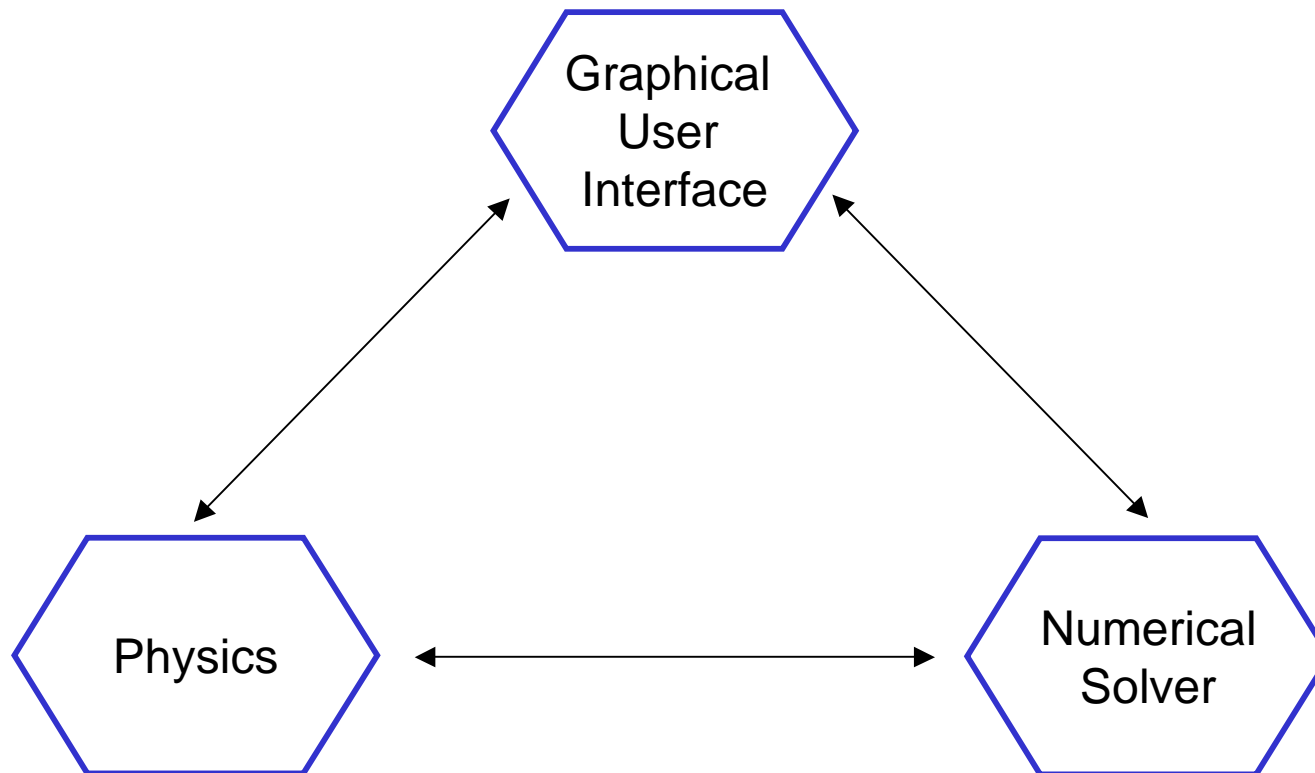


## FINESSE Solver

- Global Optimizers
- Local Optimizers
- Handles Choked Flow
- Handles User Limited Values

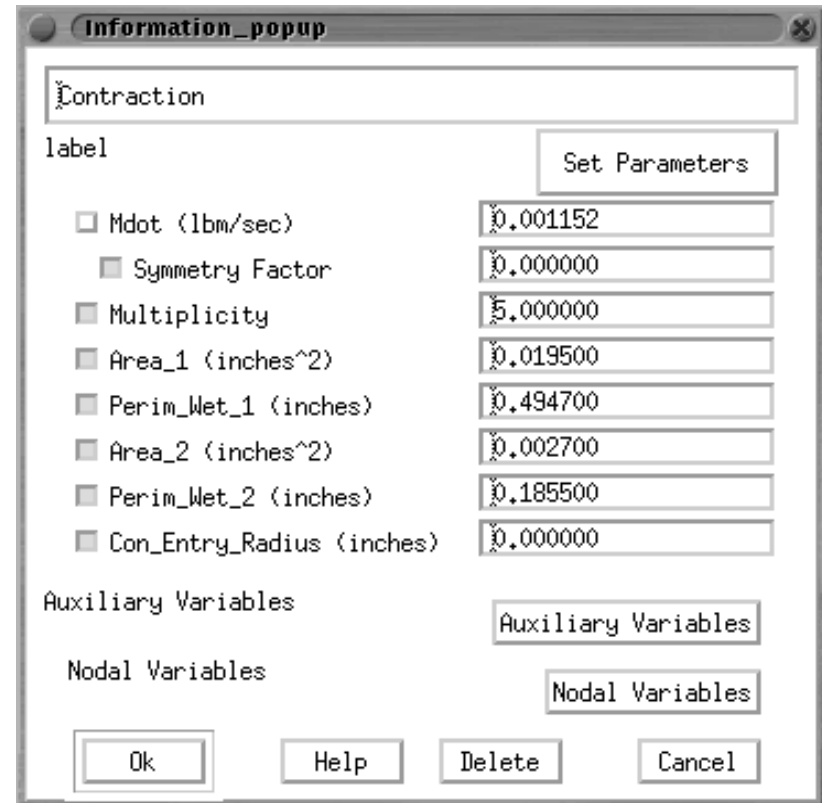


# Program Structure



# Graphical User Interface

- Point and click network definition
- User configurable and extensible
- Context sensitive help
- Connector specific input windows



## FINESSE Has Been Successfully Used For

- Turbine blade secondary flow design
- HVAC system design
- Balancing of particulate transport systems
- Design of tempering air systems
- Oil and fuel piping systems

