Roland Weibel – Background, Experience & Technical Problems

- **Educational Background**
  - BS in Aerospace Engineering, University of Kansas, May 2002
  - MS in Aeronautics/Astronautics, MIT, May 2005
- **Technical Experience**
  - Undergraduate – Airplane Design
    - Internships: Boeing, Cessna
  - Current Graduate Field – National Airspace System
    - Research topic: Integration of Unmanned Aircraft into the National Airspace System
    - Topic areas: Human Factors, Regulation, Safety
- **Difficult Problems in Industry**
  - Implementing solutions to enhancing capacity of air transportation system
    - Technical challenges - controller tools, new runways, surveillance technologies, impact of new systems
    - Political challenges – stakeholder negotiation, rulemaking, public support/opposition

Additional Observations from Field

- **Cynical Viewpoint – Very Few Designs Are Elegant**
  - Exception: radical airplane or engine design – blended wing body, sonic cruiser
  - Architecture of entire system not considered elegant

Image removed for copyright reasons.

Boeing sonic cruiser

- **Frequent Assumption: All you have to do is solve technical problem to implement**
  - Several historical examples of technical solutions developed in absence of implementation & usability considerations
  - Technical analysis models – discrete, continuous, and hybrid
- **Respected Expertise in Industry**
  - Systems-level thinking skills
  - Political & budgetary expertise
  - Quantitative analysis and subject matter expertise
- **Resulting Personal Biases**
  - Majority of experience with physical architecture and constraints
  - Technical analysis and solutions cannot always be performed/found – human & political factor often key & unanticipated