NexGen ATM System
A Perspective

National Workshop on Aviation Software Systems:
Design for Certifiably Dependable Systems

October 5-6, 2006

Presented by
Andres Zellweger
JPDO
Today’s ATM System

- A complex, highly safety critical man machine system
- Procedural command and control system
- Designed to help people (the air traffic controllers) do their job
- Separate aircraft and manage traffic flows
- “Automation” consists of real time info displays, some decision support tools
NexGen 2025 ATM System

• Much more highly automated
• New role for people and for machines (machines responsible for many functions, including aircraft separation)
• More done in cockpit – NexGen system is distributed on ground and in the air
• Direct communication between computers in airplane and computers on the ground
NexGen System Needs

- System design will include backup and recovery mechanisms involving both people and computers
- Software safety will have to consider people and computers on ground and in airplane as an integrated system
- Will need faster time to certification
- NexGen will require compatibility between certification of air and ground systems
- Will be subject to frequent software upgrades
Thank You!

contact info:
andres.zellweger-1@nasa.gov
202.220.3392