

# “Open Standards” For Avionics”

Dave Watrous

Consultant

[dwatr4000@aol.com](mailto:dwatr4000@aol.com)

# Noblis, Inc.

- A non-profit science, technology and strategy organization
  - 3150 Fairview Park Dr, Falls Church, VA 22042
- Amr ElSawy, President and CEO
  - aelsawy@noblis.org; office: 703-610-1700
- Mike McGurrin
  - mcgurinn@noblis.org; cell 703-447-5522

# VII “Open Platform” Considerations

- Objectives -- better safety, more capacity
- Performance
  - Accuracy, timeliness, connectivity
- Costs
  - To create, implement, operate, evolve
- Schedule
  - Responsive to needs, environment

# “Open System” Fundamentals ...

- Operational concepts
- Operational requirements
- Performance Standards
- Investments, implementation schedules

# The Aviation Community Approach ...

- RTCA, Inc ... a Federal Advisory Committee
  - Working Together
    - Government and the private sector
    - Domestic and international entities
- Collaboration and consensus
  - Policies, procedures, investments, schedules
- Open process / transparency

“The Authority of Agreement”

# Who is “The Community”?

- Government
- Transportation Users
  - People who purchase equipment / services
- Suppliers
  - OEMs
  - After market suppliers
  - Service providers

# Roles and Responsibilities ...

- Community -- Agree on concepts
- Government -- Safety, standards
- Users -- Operational requirements
- Suppliers -- Technology, cost and schedules
- Community -- Implementation
  - Costs, investments, fleet equipage

# A Proven Process ...

- Federal Advisory Committee
  - Open to the public [transparency]
    - Focus ... the common good
  - Address specific issue / problem
  - Establish delivery milestones
  - Volunteer leadership; work assignments
  - Recommend performance-based solution
    - Responsive, implementable

# Making the process work ...

- Agree on ops concepts / requirements
- Minimum “System” performance Std
- Minimum “Operational” performance Std
- Provide guidance materials
  - Safety critical software, testing, ...
- Volunteer work force
  - Shape the future, early view of the “market”
- Agree on achievable implementation

# MASPS Content

- Section 1: Name, rationale, typical apps
- Section 2: Min performance rqmts
  - May include comm network info
- Section 3: Min performance rqmts for each subsystem / function
- Section 4: Min verification test procedures
  - End-to-End performance verification

# MOPS Content

- Section 1: Purpose and Scope
- Section 2: Equipment performance requirements and test procedures (bench)
- Section 3: Installed equipment performance (integrated system)
- Section 4: Equipment ops performance characteristics (operational environment)

# One Aviation Example ...

- Safety critical software
  - Technology constantly improving
  - Civil aviation operations becoming increasingly more dependent on use of IT
    - Aircraft control
    - Accuracy and timeliness of aircraft positioning / navigation / surveillance information.
    - Result ... increased safety and capacity
  - Standards evolve to meet ops requirements and exploit new concepts / technology

# Summary ...

- Benefits of “Open Systems” for Avionics:
  - Increased safety and capacity
  - Superior products
  - Reduce costs
  - Accelerated implementation
- Civil Aviation provides model for success

More Details ...

# System Performance Standards

- Audience
  - Designer, Manufacturer, Service Provider, Installer, User
- Content
  - System / subsystems / functions, characteristics, ops goals, requirements, applications, test procedures
- Application
  - “One means” of assuring system performs function

# Operational Performance Standards

- Audience
  - Designer, Manufacturer, Service Provider, Installer, User
- Content describes Specific Equipment
  - Components / units, rationale for equipment characteristics, definitions & assumptions, installed equipment tests, ops performance characteristics
- Application
  - “One means” of assuring system performs function