Realistic NACs and NICs

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Background

- GPS systems
- GPS accuracy and integrity
  - Based on original DOD specs?
  - Based on minimum constellation (17 satellites)?

  Or
  - Based on historic performance
  - Based on historic constellation
  - SA on or off

Problem

- Many of the current NAC (and NIC?) values were conservatively based on the assumed performance of the various navigation systems rather than a through safety analysis
- The many SA “on” aircraft will not be eligible for many situational and spacing applications
- What applications can be safely done with lower NACs and NICs?
- Is NIC required for applications that don’t base separation on ADS-B?
- For separation application, an we safely operate with operational restrictions if SA were turned “on” or the number of satellites falls below a specified number?

Surface Operations

- MOPS
  - Very conservative
  - NIC below 8 not allowed
- Our experience
  - Actual - Aircraft on center line
  - CDTI - Aircraft on center line
  - Shows as degraded or not at all
- FAROA and SSA applications do not involve separation or spacing
  - Alerting should be treated differently than basic situational awareness
- What applications actually need NIC
- Do we allow 0 NIC or change MOPS to allow lower NIC than 8

Airborne Applications

- Separation requirements are already being analyzed
- Are NIC requirements too high for non-separation applications
  - Is a NIC of 7 too high?
  - What factors should we take into account on setting NIC?

Way Forward

- With current work (US, Australia, Canada, Europe) there is now data and safety analysis
- NIC and NAC values need to be reevaluated especially for near term applications
- We need to use actual performance rather than design specifications