Challenges of Remote Technologies Panel

ICAO Remote ATS and RPAS Symposium

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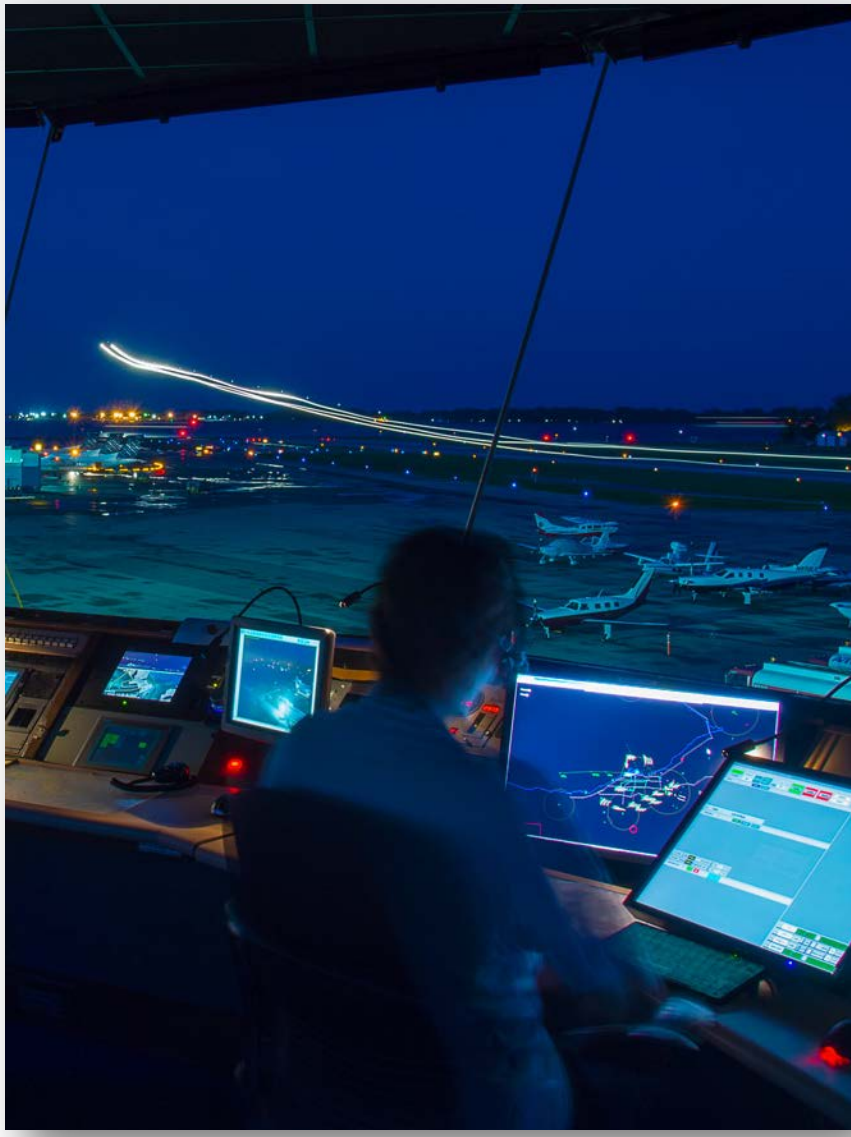
Outline

- Our Facilities
- Our ATS Service Options
- Selecting the ‘Right’ Service Level
- A Remote Service Approach
  - Drivers
  - Business Case
- Developing a Remote Service Strategy
  - Strategy
  - Regulator
  - Flex Service



Our Facilities

7 Area Control Centres

41 Air Traffic Control Towers

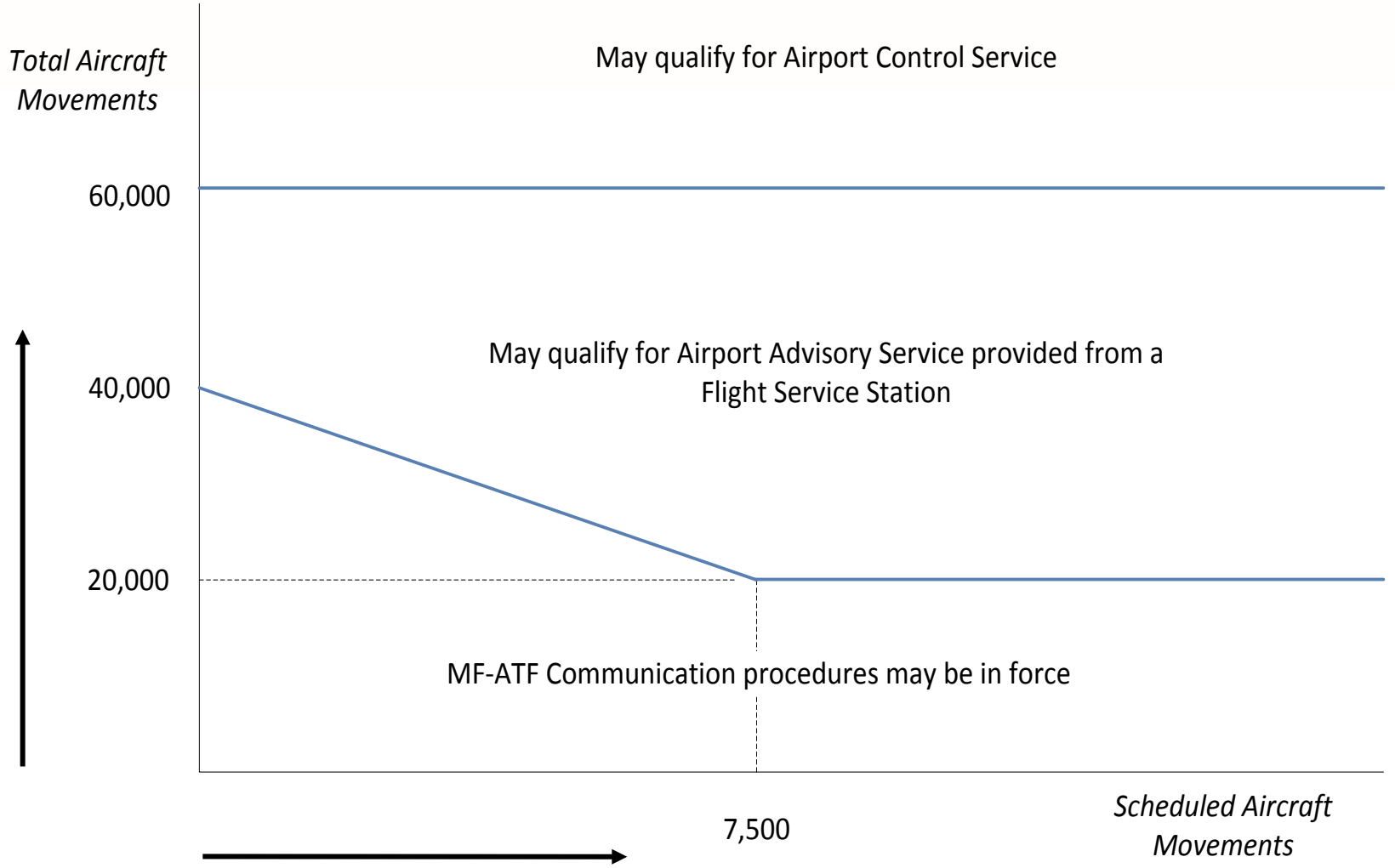
55 Flight Service Stations

38 Remote Flight Service Stations

Our ATS Services Options

- Airport Control Service
- Airport Advisory Service – FSS
- Remote Advisory Service – RAAS
- Flight Information Services – FIC
- Remote Weather Reporting – (AWOS, LWIS, DWC)
- Remote Control Service - RTS

Aircraft Movements
Airport Traffic Services Chart



Selecting the ‘Right’ Service Level

- Level of Service Policy
- Traffic
  - Movements
  - Types
  - Complexity
- Business Case
  - Technology investment
  - Staffing
  - Existing infrastructure
- SAFETY
  - HIRA

Remote Services Approach

- Services provided from another location
  - Approach Control
  - Traffic
  - Weather
  - Vehicle Advisory Service

What Drives a Remote Service Approach?

- Geography
- Climate
- Infrastructure
- Traffic
- Cost efficiency
- Technology

Making a Business Case for Remote Services

- Considerations:
  - Salaries, Benefits, Allowances
  - Facility Costs/Upgrades
  - Provision of Telecom/Networking services
  - Service and maintenance costs of sophisticated equipment
  - Training

Business Case Examples

- Scenario 1: Build a new or replacement ATC facility
  - Costs for new medium size facility?
  - Average annual Operating costs approx?

- Scenario 2: Increase in Level of Service from Advisory to ATC
  - Average Cost increase to transition from FSS to full ATC service
  - Addition of staff to provide remote service from existing tower

- Scenario 3: Combine Services from 2 ATC Towers
  - Cost to operate two ATC towers of similar size
  - Addition of staff to provide remote services

- Scenario 4: Provide Remote Services from ACC Specialties
  - Additional Staff costs in the Area Control Centers
  - Training and licensing costs for ACC staff

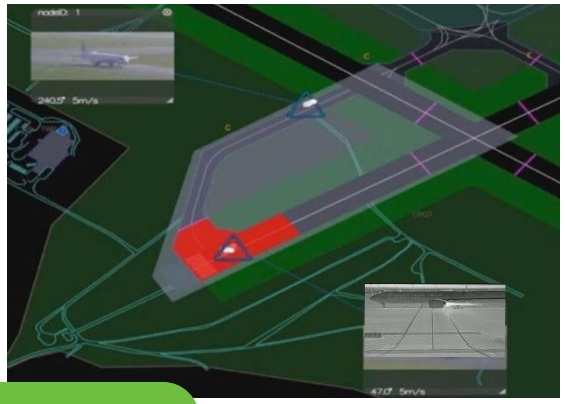
Developing A Remote Services Strategy

- Support the service required
- Put the right technology in place for the type of remote operation
- Incremental approach

Remote Tower Toolbox

OTW Presentation

Tracking & Analytics



Intelligent Video Applications

Integration w/ ATC & Airport Systems

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SEARIDGE TECHNOLOGIES

SERVING A WORLD IN MOTION

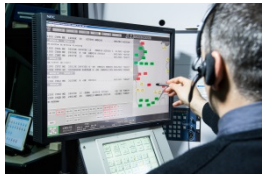
Integrated Tower Technology

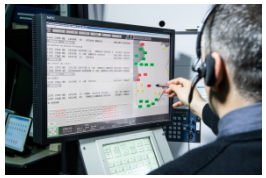
Remote or Otherwise

Remote Services Strategy
(using video technology)

1. Video Ground Surveillance	• Large Complex Airports • Video capabilities used equivalent to existing surface detection
2. Video Enhanced Control Service	• Controlled Airports requiring enhanced "Out the Window View" • Enhanced control service with video for targeted areas, visual verification
3. Video Enhanced Advisory Service	• Advisory Airports requiring enhanced "Out the Window View" • Enhanced advisory service with video for targeted areas, visual verification
4. Video Enhanced RAAS	• Enhancing existing advisory services • Enhanced RAAS with video for seasonal peaks and to optimize LOS
5. Control Service Transfer	• Airports that have a mixture of control and advisory service • Existing control services remoted to another location and/or to optimize LOS
6. Advisory Service Transfer	• Airports requiring RAAS • Existing advisory services remoted to another location and/or to optimize LOS
7. Remote Control Service	• Airports requiring Control Service • Airport control services provided by a controller in a remote control facility
8. Enroute/Airport Control Service	• Low density airports • Airport control services provided by enroute controller in a remote control facility

Regulator Strategy





Task Analysis

SME | Human Factors | Standards & Procedures | Safety | Training

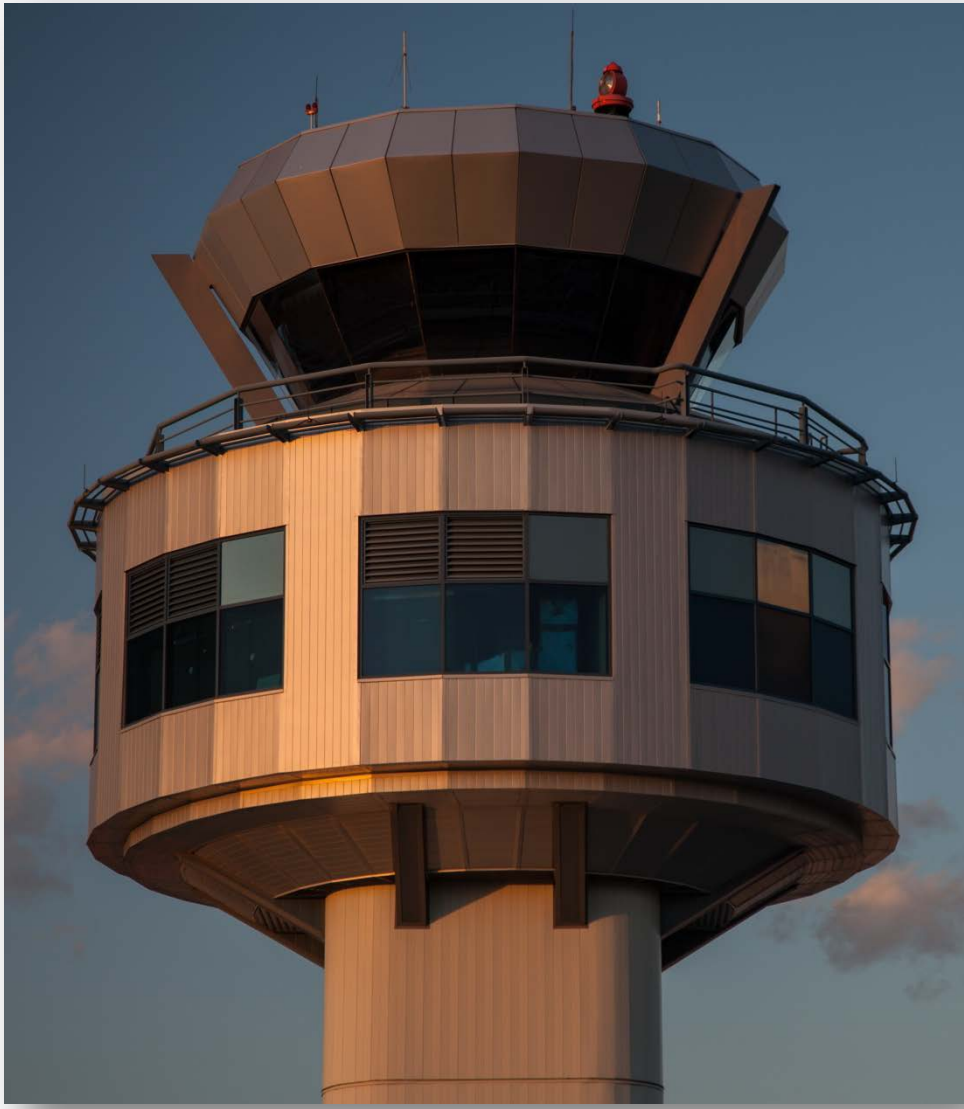
- Technical Requirements
- Safety Case
- Procedures / Manual of Operations
- Training Package
- HMI Development
- Regulatory Approval

Business Cases

Site Selections

Flex Service Solution

- Provide ‘on-demand’ tower control services from anywhere to anywhere.
  - Multiple low-volume sites (midnight shift balancing/consolidation)
  - Seasonal peaks (tourism)
  - Single contingency operation for multiple towers (tower evacuation, construction, etc.)
- Training efficiencies (fewer personnel)
- Standardized tower control toolset
- No need to redeploy staff
- Risk management

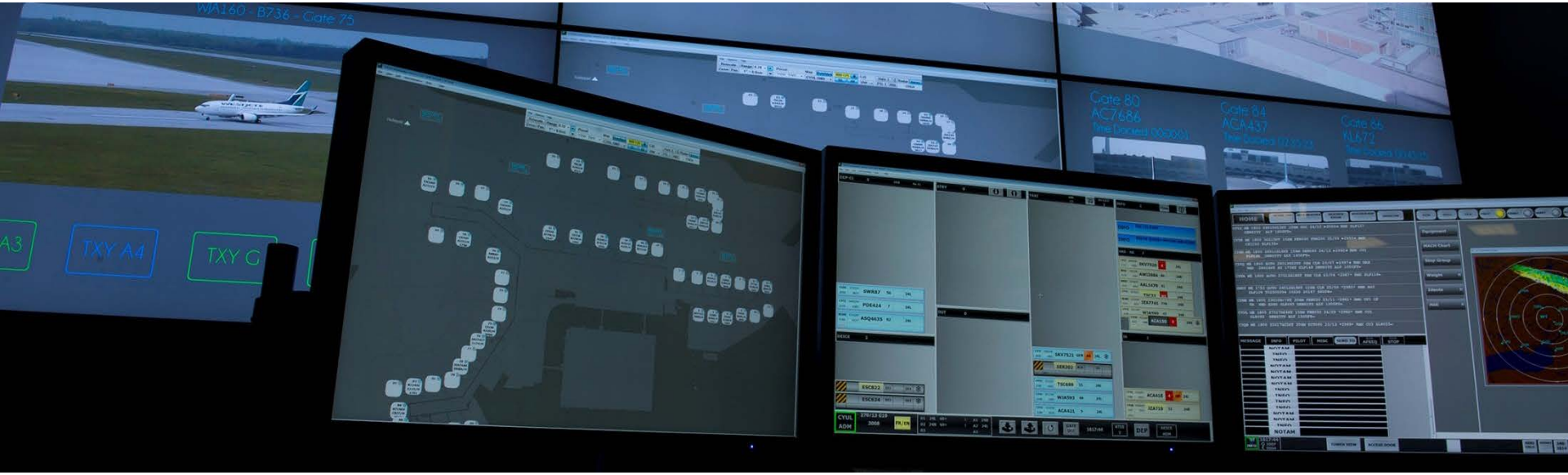


Remote Air Traffic Control in Canada
Proof of Concept

- Joint Project:
  - NAV CANADA and Searidge Technologies
- Proof of Concept for Remote ATC from Halifax to Fredericton (midnights)
- Using two currently staffed ATC Towers
- NAVCANsuite and Searidge Integrated Tower technology
- Project underway

Keys to Success

- Offer cost and operational efficiencies
  - Focus on automation innovation and technology
- Use an incremental approach
- Determine and develop procedures
- Put the right technology in place for the type of operation
- Involve employees at all stages
- Communicate with the Regulator at all stages



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20 YEARS

SERVING A WORLD IN MOTION