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INTERNATIONAL CIVIL AVIATION ORGANIZATION

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NAT Vision – Moderator's Summary

Tom Kirkhope, NAT SOG Chair

North Atlantic (NAT) 2030 Vision Workshop

7-8 February 2023

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Safety performance based on 2021 traffic and events

- Safety performance is generally positive with single events driving overall performance.
- Contributing factors remain consistent over the past few years.
- Deployments in the NAT such as datalink and ADS-B/C have played a vital part in the reduction in safety “risk”.
- **Can the goals target the contributing factors?**

New Entrant project Team: Colin Scott and Joe Ryan

- Developing draft guidance for use by operators to increase awareness and provide advice to operators.
- Focussing on space and re-entry users.
- Much bigger and more specific discussions in the goal discussion.
- **A risk of scope creep and a need to be clear on the scope of the PT. Consider new PTs with very specific TORs.**

GANP update: Sven Halle

- ICAO Assembly endorsed 7th edition of the GANP.
- Opportunity to update the roadmap and tie the vision to the GANP.
- PT formed awaiting the availability of the 7th edition to commence its work. **Output from PT may impact goals associated with the vision.**

Cyber: Cornelia Ludorf

- Cornelia presented the origins of the cyber security frameworks reinforcing the need for global cooperation.
- Provided links to supporting material.
- A request for ratification of Beijing instruments.
- **Little value in regional action and no specific action on the visions goals seems appropriate.**

Environment: Blandine Ferrier

- Introduced ICAO's goals on noise, air quality and global climate.
- A number of links to publications and guidance.
- Aircraft technologies, sustainable fuels and operational improvements.
- Encouraging States to submit State action plans.
- Possibility to use environmental measures to support project benefit statements.
- **Plan to signpost environmental measures in this year's safety (and environmental) performance report.**

US presentation: Jen Kileo

- Presentation on a programmatic approach to the vision's goals.
- Objectives need to be smart.
- Benefits need to be clear and measurable.
- Progress should be tracked.
- **Working with the PT that Sean proposes for understanding metrics redraft the agreed goals with greater clarity and report progress via a dashboard? To be discussed in the governance discussion?**

NAT Vision – Conclusions

Sean Patrick, NAT IMG Chair

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NAT VISION STATEMENT

Through collaboration and by leveraging innovation, the NAT SPG leads the way for the provision of safe, secure, efficient, sustainable and resilient Air Traffic Management Services to ensure an optimized seamless service.

AGREED NAT VISION ACTIONS

1. Establish a NAT SPG PT to examine reporting metrics (environment, performance, safety, customer etc.) Draft TORs for spring IMG and SOG. (Ongoing)
2. Document/share/educate/advise current NAT operational capabilities (including presentation at NAT OPS Forum). (Action to the POG initially)
3. Circulate revised Vision and decisions/notes. (Attached)
4. Governance: current arrangement maintained for now and to be formalised in IMG work programme. (Noted)

Revised ICAO NAT Vision

Sean Patrick

ICAO NAT IMG Chair

ICAO EUR/NAT Office

North Atlantic (NAT) 2030 Vision Workshop

07-08 February 2023 Outcome

NAT VISION STATEMENT

Through collaboration and by leveraging innovation, the NAT SPG leads the way for the provision of safe, secure, efficient, sustainable and resilient Air Traffic Management Services to ensure an optimized seamless service.

NAT VISION HIGH LEVEL PRINCIPLES

Agreed NAT Vision Five High Level Principles:

a) Respond to changing traffic profiles in a safe, efficient and sustainable manner based on agreed performance based measurable criteria. Meet, and where possible, exceed the NAT Safety Targets.

b) Enhance and develop the NAT airspace to safely and effectively integrate all anticipated airspace users, while aligning with the Global Air Navigation Plan (GANP) and Global Aviation Safety Plan (GASP), as required.

c) Utilise operational and technological developments to improve safety, service delivery and efficiency of operations.

NAT VISION HIGH LEVEL PRINCIPLES

d) Implementations should be based on business analysis encompassing safety, service and environmental benefits, cost and practicality.

e) Include all stakeholders, and, when relevant, military authorities, in a collaborative decision making process to effect change.”

NAT VISION GOALS and OBJECTIVES

Goal 1	Objective
Ensure as far as possible that all NAT developments are implemented in cooperation with all adjacent regions and industry wide stakeholders to achieve seamless boundaries.	All stakeholders, including other regional environments, will be engaged in the development and implementation of the Development Roadmap to ensure all operational and technical capabilities are appropriately exploited such that we have seamless operational boundaries.

Goal 1 & 3 combined

NAT VISION GOALS and OBJECTIVES

Goal 2	Objective
Enhanced resilience and predictability of the NAT wide operations.	1. Weather and other operational impacting events are managed through appropriate and agreed plans with minimum of operational impact. 2. That operations consistently adopt across the NAT, new advanced tools to enhance proactive management of potentially operational impacting events. 3. The NAT Contingency procedures shall be continually reviewed to take account of the developing understanding of advancements in aircraft/new entrants technical resilience. 4. Resilience of communications infrastructure is ensured.

NAT VISION GOALS and OBJECTIVES

Goal 3	Objective
~~Continued cooperation with all adjacent regions and industry wide stakeholders to achieve seamless boundaries.~~	~~All stakeholders will be engaged in the development and implementation of the Development Roadmap to ensure all operational and technical capabilities are appropriately exploited.~~

Goal 3 removed

NAT VISION GOALS and OBJECTIVES

Goal 3	Objective
The NAT operations takes account of both the prevailing and forecast operational and stakeholders' capabilities and implements proportionate performance based outcomes.	1. New technology will be supported by an agreed Concept of Operations and a safe and cost-effective solution. 2. The NAT will optimize utilization of current capabilities whilst ensuring all new developments do not inadvertently impact prevailing capabilities. 3. The development roadmap will be continually validated to ensure it remains relevant.

Goal 4 renumbered to 3

NAT VISION GOALS and OBJECTIVES

Goal 4	Objective
The NAT technology roadmap is aligned to the practical capabilities that will exist in the future.	Maximise benefits from available technologies.

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Goal 5 renumbered to 4

NAT VISION GOALS and OBJECTIVES

Goal 5	Objective
Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.	Performance based metrics and meeting the NAT safety targets, including TLS, as well as any other future performance targets.

Goal 6 renumbered to 5

Goal-1	NAT VISION GOAL			
	Potential Improvement	Prioritisation	Feasibility Timeline	NAT Sub-Group
Progress				
Discussion				

Prioritisation: (1 to 5): One (Essential/Benefit);
Two (Preferred) Three (Enhancement)
Four (New); Five (Desirable but not 1 - 4)

Feasibility/Timeline: (1-3): One (2021 -2023),
Two (2023 – 2026), Three (2026 – 2031)

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-1	Ensure optimal use of the currently available technology as this will continue to be in future use. Pursue further improvements to FANS 1/A.	2	2023-2026	TIG/IMG
Progress	Continual implementation of initiatives such as SB ABS-B ASEPS, 15NM TtT separation, Tango route VHF enhance and improve NAT DL mandate post implementation			
Discussion	Define current activity			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of “seamless boundaries.”			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-2	Consider ATN B2 Introduction	4	2026-2031	NAT TIG
Progress	NAT TIG to specifically include in next meeting and advise on appropriate outcomes.			
Discussion	What is the impact on the NAT. When/who is affected? Is there a benefit?			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-3	Reduce the footprint of the OTS (lateral, vertical and time period)	2	2023~~2~~2-2026	POG/TIG IMG/SOG
Progress	• 2022: The vertical footprint of the OTS has been reduced by removing FL310, FL320 and FL330. • 2022: The NAT OTS Focus Group (NOD FG) continues its work on NAT OTS re-evaluation			
Discussion	KPI's, quantified outcomes, operational usage and user profiles required to understand and agree potential benefits. (Action to establish Metrics PT agreed)			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-4	Enhance the use of User Preferred Routings (UPR)	2	2023~~2~~2-2026	POG/TIG IMG/SOG
Progress	• 2022: NAT POG proposal to amend NAT Doc 007 with User Preferred Route (UPR) guidance for Bodø, Shanwick and Santa Maria.			
Discussion	Reworded. Continue to monitor and discuss. What is the optimum? How will this be demonstrated. (Potentially one for the Metrics PT)			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-5	Only apply speed restrictions when needed for separation (OWAFS)	1	2021-2023~~3~~4	POG/SOG/IMG
Progress	• 2021: Oceanic clearances still include assigned Mach number and ATC issues a clearance to RESUME NORMAL SPEED after oceanic entry whenever possible. • The final step in OWAFS implementation will take place in Q2 2024 when oceanic clearances are discontinued, and the norm becomes that aircraft enter the NAT Region on normal speed.			
Discussion	Maintain until OCR implemented. Baseline required to understand and quantify benefit. (Metrics PT to consider for TORs)			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-6	Discontinue oceanic clearances	1	2021-2023~~3~~4	POG/SOG/IMG
Progress	• 2021: Concept of operations is complete. • 2022: Documentation changes have been drafted and agreed in POG (Doc 7030, Doc 007, new OPS Bulletin). • NAT Regional safety case approval by NAT SOG December 2022. • Implementation is expected in Q2 2024.			
Discussion	Monitor until implementation then remove at next update.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-7	~~Strategic vs Tactical control/Reduced conflict probe horizon (The use of reliable communications and surveillance to eliminate the need for clearances to define conflict-free profiles which extend all the way to landfall. Rather, conflicts will be progressively resolved over the duration of the flight.)~~	~~2~~	~~2021-2023~~	~~POG/IMG~~
Progress	• 2022: Discussed at POG/14			
Discussion	Remove. Currently being implemented at individual ANSP level.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-8	~~Dynamic Airborne Rerouting Procedure (DARP)~~	~~1~~	~~2021-2023~~	~~POG/TIG/IMG~~
Progress	• 2022: NAT POG/14 agreed to document current NAT ANSP DARP capabilities in NAT Doc 007.			
Discussion	Lack of clarity at the meeting about exactly what DARP was. Discussion on potential impact at Oceanic exit and use of the route uplink message. Formal clarity to be provided at next POG meeting and once clearly documented, this activity should be removed from the vision.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-7	Consider RVSM above FL410	3	2021-2023	OPDLWG ATMOPS POG/TIG/IMG SOG/SASP
Progress	• 2022: NAT POG/14 Statistics on flight level usage were presented. Next step for POG/15 is to create a comprehensive statistics package of flight level usage for the NAT and seek inputs from aircraft manufacturers.			
Discussion	Renumber and retain. Groups need to understand if this is a new NAT requirement that falls out of enhanced aircraft performance on the NAT, or in response to a ICAO global initiative.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-10	~~Consider formation flights~~	~~5~~	~~2026-2031~~	~~POG/TIG IMG/SOG~~
Progress				
Discussion	Remove. Procedures already exist to facilitate formation flights on the NAT.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of “seamless boundaries.”			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-11	~~Self-Separation~~	~~4~~	~~2026-2031~~	~~POG~~
Progress				
Discussion	Remove. This has been successfully trialled on the NAT under the ‘Fello-Fly’ initiative. Further implementation will require a change to global separation standards which is not in the remit of the NAT to pursue. Airbus will continue to brief the NAT TIG on progress.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-8	Accommodation of new entrants – supersonic aircraft	3	2026-2031	POG/IMG/SOG
Progress				
Discussion	Renumber and continue to progress/monitor in sub-groups.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-9	Drive and develop standard procedures for new entrants – UAS, UTM, balloons and operations above FL460.	3	2026-2031	POG/IMG/SOG
Progress				
Discussion	Reword, renumber and include Goal 1-14. Sub-groups to include new entrant developments in normal work programme.			

Goal-1	Ensure as far as possible that all NAT developments are implemented in the context of "seamless boundaries."			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
1-14	~~Accommodation of new entrants - operations above FL460.~~	~~3~~	~~2026-2031~~	~~POG/IMG/SOG~~
Progress				
Discussion	Incorporate into 1-9.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-1	~~Communication systems resilience – SATVOICE Migration from HF Voice to SATVOICE as backup to FANS~~	~~2~~	~~20232-2026~~	~~POG/TIG/IMG~~
Progress	2022: Initial information material discussed at NAT TIG/14.			
Discussion	Remove. SATVOICE PT noted that SATVOICE migration from HF Voice to SATVOICE as backup to FANS was not viable but to achievable due to multiple single points. TIG to continue to monitor development of dual independent SATVOICE capabilities, but IATA commented operational costs would likely be prohibitive.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-1	Communication systems resilience – Digital HF developments	3	2026-2031	POG/TIG/IMG
Progress				
Discussion	Renumber. Continue to monitor HF Next capabilities through TIG.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-2	Communication systems resilience – Space Based VHF	3	2021-2023	POG/TIG/IMG
Progress	2022: Initial information material discussed at NAT TIG/14.			
Discussion	Renumber. Continue to monitor capabilities through TIG.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-4	~~Improvements to end-to-end performance to meet at least RCP 240 and including their associated SRs~~	~~1~~	~~20231-2031~~	~~POG/TIG~~
Progress	This is an ongoing objective of the NAT TIG work programme.			
Discussion	Remove. Continually addressed through the TIG.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-5	~~Improvements to end-to-end performance to meet at least RSP 180, including their associated SRs~~	~~1~~	~~20231-2031~~	~~TIG~~
Progress	This is an ongoing objective of the NAT TIG work programme.			
Discussion	Remove with previous rational.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-6	~~NAT Contingency procedures shall be continually reviewed (every Spring).~~	~~1~~	~~2021-2031~~	~~POG~~
Progress	• 2022: Comprehensive amendments to NAT Doc 006.			
Discussion	Remove. Captured in Doc 006 and added to TORs for the POG.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-7	~~Ensure systems cybersecurity and resilience.~~	~~1~~	~~2021-2031~~	~~POG/TIG/IMG/ SOG~~
Progress	•2020: Cybersecurity workshop 3-4 March 2020. • 2022: NAT SPG/58 agreed to conduct a NAT Cybersecurity workshop in the first half of 2023.			
Discussion	Remove. Detailed presentation on current threats. Agreed that no specific NAT actions required as the consensus is that individual State and global ICAO protocols are sufficient at this time. States were reminded to fully engage with ICAO to ensure future activity is aligned.			

Goal-2	Enhanced resilience and predictability of the NAT wide operations.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
2-8	~~Consider space weather factors as part of contingency procedures.~~	~~2~~	~~2021-2023~~	~~POG~~
Progress	2022: NAT POG/14 proposes to add space weather contingency procedures to NAT Doc 006. 2022: NAT POG/14 proposes establishment of a NAT Space Weather Exercise Steering Group.			
Discussion	Remove. Action already completed.			

Goal-3	Continued cooperation with all adjacent regions and industry wide stakeholders to achieve seamless boundaries.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
3-1	~~The ICAO Aviation System Block Upgrades (ASBU) document will be reviewed at every Spring IMG.~~	~~1~~	~~2021-2031~~	~~IMG~~
Progress	2023: First review will be done in spring 2023.			
Discussion	Remove. This has now been captured in IMG TORs. However, activity is unlikely to commence until revised ASBU/GANP updates are made available and published.			

Goal-3	The NAT operations takes account of both the prevailing and forecast operational and stakeholders' capabilities and implements proportionate performance-based outcomes.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
3-1	Space-based ADS-B surveillance (work already in progress)	1	2021-2023	POG/TIG
Progress	**Implementation status:** Bodø: Entire Bodø FIR from surface to FL 100. Iceland: Entire Reykjavik CTA except below F255 south of 70N. Shanwick: Entire Shanwick FIR from 100 to 60.000 feet Gander: Entire Gander CTA from surface to 60.000 feet. Santa Maria: Q2 2023 New York OCA East, not available.			
Discussion	Renumbered. Continue to monitor implementation status.			

Goal-4	The NAT operations takes account of both the prevailing and forecast operational and stakeholders' capabilities and implements proportionate performance-based outcomes.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
4-2	~~Use of aircraft downlink parameters (i.e. pilot selected level);~~	~~2~~	~~2023-2026~~	~~POG/TIG/IMG~~
Progress				
Discussion	Remove. Individual ANSPs already actioned.			

Goal-3	The NAT operations takes account of both the prevailing and forecast operational and stakeholders' capabilities and implements proportionate performance-based outcomes.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
3-2	Support Implement of SWIM and FF-ICE	3	2026-2031	ALL
Progress				
Discussion	Renumber. Recommendation to include progress report in TIG/POG summaries to the IMG.			

Goal-4	The NAT operations takes account of both the prevailing and forecast operational and stakeholders' capabilities and implements proportionate performance-based outcomes.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
4-4	~~Address the regulatory oversight of CSPs and SSPs;~~	~~1~~	~~2021-2023~~	~~TIG OPDLWG IMG/SOG~~
Progress	2022: Discussed at NAT SOG/26. Action on states to provide feedback			
Discussion	Remove. Currently tracked through the SOG.			

Goal-4	Our technology roadmap is aligned to the practical capabilities that will exist in the future			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
4-1	The ICAO Aviation System Block Upgrades (ASBU) document will be reviewed at every Spring IMG.	1	2023~~1~~-2031	All Groups
Progress	2023: First review will be done in spring 2023.			
Discussion	Renumber. Retain for present until outcome of first review is clear.			

Goal-5	Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
5-1	NAT Safety Targets	1	2023-2025	All Groups
Progress				
Discussion	Renumber. To be captured as part of the Metrics PT outcomes.			

Goal-5	Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
5-2	Horizontal Flight Efficiency	1	2022~~3~~-2025	All Groups New Group Required
Progress				
Discussion	Renumber. To be captured as part of the Metrics PT outcomes.			

Goal-5	Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
5-3	Vertical Flight Efficiency	1	2022~~3~~-2025	All Groups New Group Required
Progress				
Discussion	Renumber. To be captured as part of the Metrics PT outcomes.			

Goal-5	Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
5-4	Cost per 100KM ($)	1	2022~~3~~-2025	All Groups New Group Required
Progress				
Discussion	Renumber. To be captured as part of the Metrics PT outcomes.			

Goal-5	Safety, Service, Value and Environment benefits are measurable using representative metrics and are part of not only the business case for all developments but are used to monitor the NAT performance.			
	Potential Improvement	**Prioritisation**	**Feasibility Timeline**	**NAT Sub-Group**
5-5	Monitoring, reporting and verification of CO^2 emissions in accordance with Annex 16, Volume IV, and the Environmental Technical Manual (Doc 9501), Volume IV.	1	2022~~3~~-2025	All Groups New Group Required
Progress				
Discussion	Renumber. To be captured as part of the Metrics PT outcomes.			

Thank You!

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