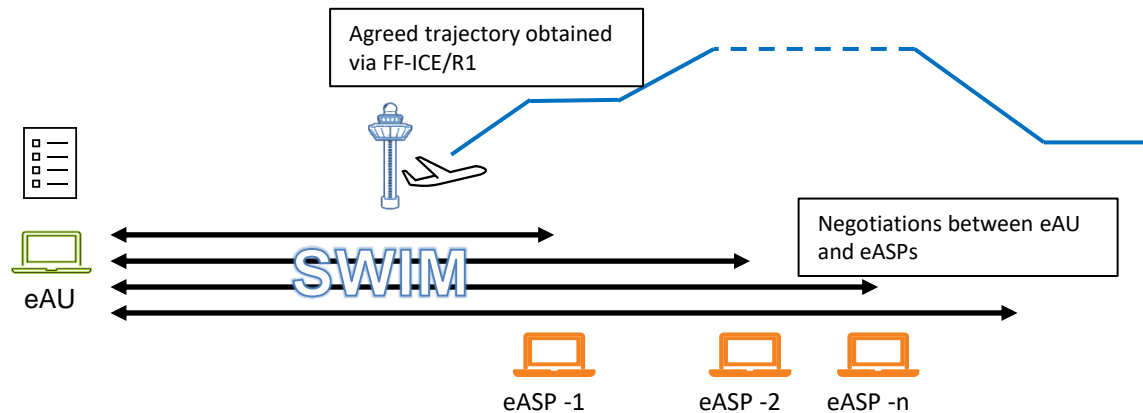APAC FF-ICE Ad hoc Group Workshop with TTX

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# FF-ICE's Role in TBO

# FF-ICE to Support TBO

- FF-ICE Release 1 (FF-ICE/R1) refers to the pre-departure phase, while FF-ICE/R2 extends to include active flights
- With FF-ICE/R1, an agreed trajectory can be established among all stakeholders prior to departure, via the FF-ICE flight plan (eFPL). FF-ICE/R2 supports post departure trajectory negotiation and allows continuous updates/revisions to the agreed trajectory
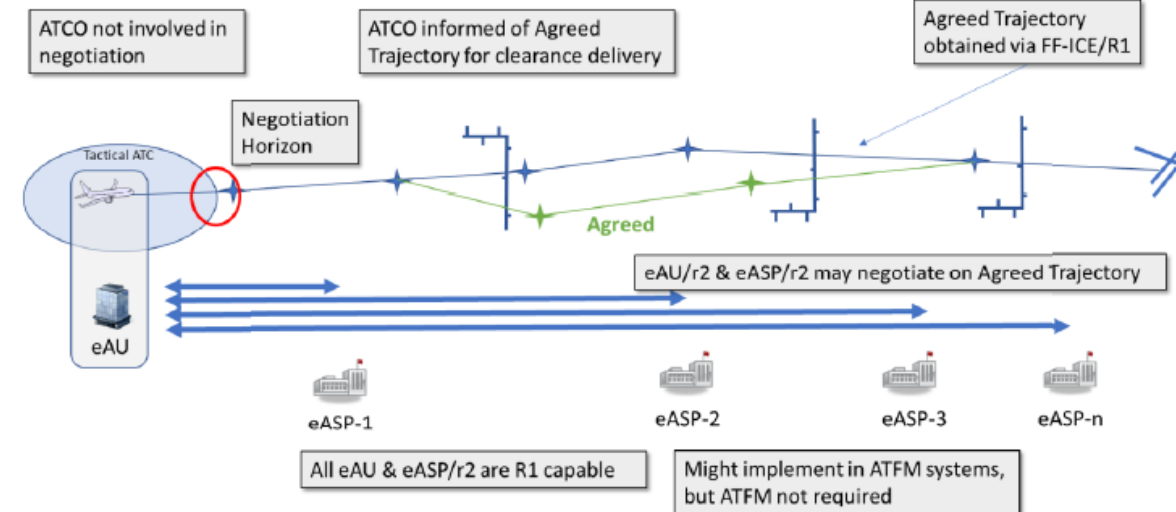


## FF-ICE/R1 : Pre-departure

Agreed trajectory obtained via FF-ICE/R1

Negotiations between eAU and eASPs

SWIM

eAU

eASP -1   eASP -2   eASP -n

**Pre- Departure**
- Airspace users and ATM Service Providers collaboratively develop agreed trajectory
- Takes into account AU' preferences and ASPs' limitations and restrictions

## FF-ICE/R2 : Post-departure

ATCO not involved in negotiation

ATCO informed of Agreed Trajectory for clearance delivery

Agreed Trajectory obtained via FF-ICE/R1

Negotiation Horizon

Tactical ATC

Agreed

eAU/r2 & eASP/r2 may negotiate on Agreed Trajectory

eAU

eASP-1   eASP-2   eASP-3   eASP-n

All eAU & eASP/r2 are R1 capable

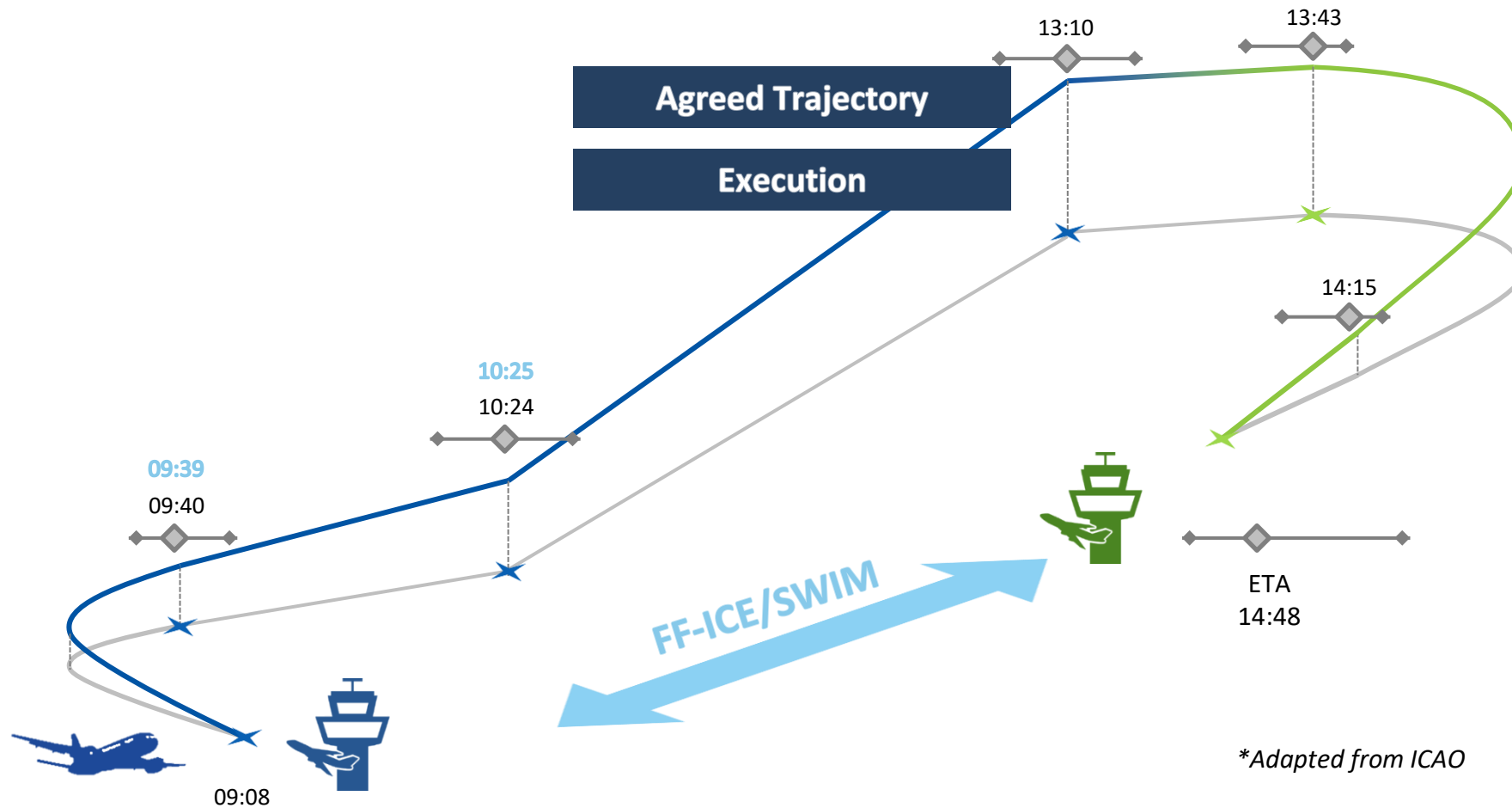Might implement in ATFM systems, but ATFM not required

**Post- Departure**
- Updates and revisions to agreed trajectory can be made
- Negotiations continue to take place, taking into account changing environmental factors and tactical events
- Any change is shared timely and consistently with all stakeholders (Ground-Ground and Air-Ground systems)
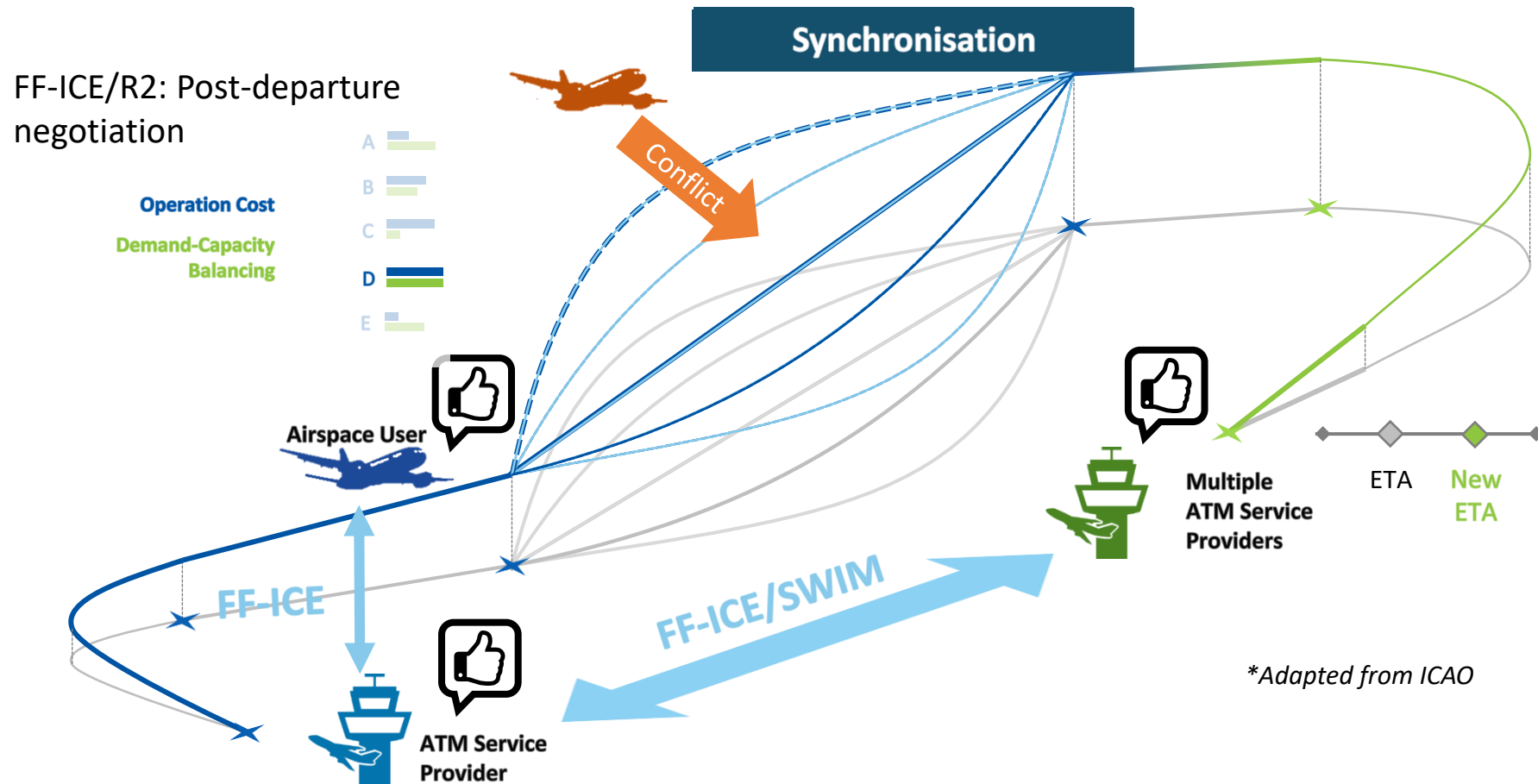
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# FF-ICE to Support TBO

- The agreed trajectory is shared, maintained and used by all stakeholders



*Adapted from ICAO

# FF-ICE to Support TBO

- Post departure, negotiations are carried out using FF-ICE/R2 mechanisms and changes to agreed trajectory can be made. Changes will be shared timely via Air-Ground and Ground-Ground systems



FF-ICE/R2: Post-departure negotiation

Operation Cost

Demand-Capacity Balancing

Synchronisation

Conflict

Airspace User

Multiple ATM Service Providers

ETA

New ETA

FF-ICE

FF-ICE/SWIM

ATM Service Provider

*Adapted from ICAO

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# Thank You

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