

# The World In A Business Day The Future of High Speed Aerospace Transportation

March 15-17, 2016

Abu Dhabi, UAE

PRESENTED BY:

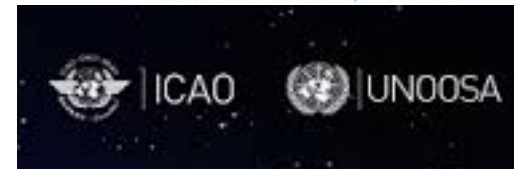
Oscar S. Garcia, Chairman

InterFlight Global Corporation

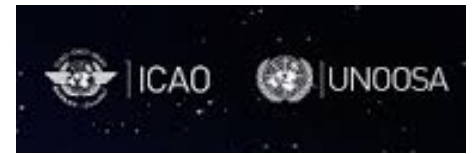
For:



 **NBAA2015**  
BUSINESS AVIATION CONVENTION & EXHIBITION  
NOVEMBER 17, 18, 19 | LAS VEGAS



# Agenda



- **THE WORLD IN 4 BUSINESS DAYS**
  - Private and Airline Aviation Ultra and Extreme Long Range Missions Today's Aircraft B 787, A 350, Gulfstream 650, Falcon 8X, Global 7/8000
- **THE WORLD IN 2 BUSINESS DAYS**
  - Supersonic Private Aviation Considerations and Initiatives- The Case of the Aerion AS-2
- **THE WORLD IN 1 BUSINESS DAY**
  - The Hypersonic Mach 2-5 Initiatives-HyperMach
- **THE WORLD IN A 12 HOUR DAY**
  - The Suborbital Mach 5-10 Initiatives
- Future considerations and Forwards thoughts
- Q&A and Contact



# Private Aviation

NBAA2015

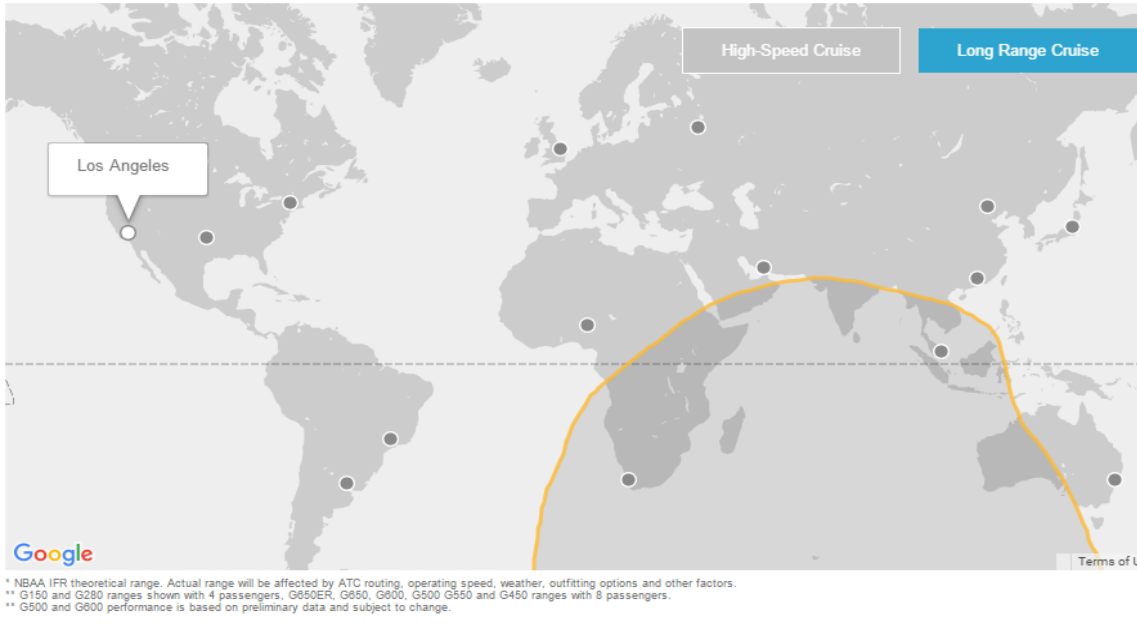
## Ultra-Long Range Mission

### G-650 ER 7,500NM/M.85/17 HRS

### The World in Four Business Days



● High Speed ● Long Range



\* NBAA IFR theoretical range. Actual range will be affected by ATC routing, operating speed, weather, outfitting options and other factors.  
 \*\* G150 and G280 ranges shown with 4 passengers. G650ER, G650, G600, G500 G550 and G450 ranges with 8 passengers.  
 \*\*\* G500 and G600 performance is based on preliminary data and subject to change.

# The Airline Extreme Range Mission (10,000NM) Aircraft Sample B787/A350 LR BBJ/ACJ

The World in Three Business Days

Any Two Points on Earth!.... M .84 20-22 hrs!



**Aerion AS 2**  
**Supersonic Business Jet Program**  
**The World in Two Business Days**  
**The market wants it, it is really happening!**



# Shrinking the World Initial Considerations

It's Finally Happening!  
This is Not a Concorde Affair!



*Flexjet's Kenn Ricci, center, signs a supersonic lease with Aerion's Brian Bannets, left, Ernie Edwards, rear, and Robert Bass.*

## Flexjet hatches Mach-busting plan, placing \$2.4b Aerion AS2 order

by Mark Huber

Fractional-share provider Flexjet signed a firm order yesterday for 20 Aerion AS2 super-sonic business jets for delivery beginning in 2017.

that is supersonic is a very exciting thing to do," said Flexjet CEO Kenn Ricci. "We have a lot of confidence in Rob Habel and his

## NBAA calls for resistance

by James Wynbrandt

The FAA budget reauthorization time bomb was audibly ticking at the NBAA Convention's opening general session. NBAA president Ed Bolen warned his members that they must stand up to an airline lobby push for air traffic control privatization to be funded by user fees in place of fuel taxes and devoid of Congressional oversight to allow

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## Bombardier 'beaming'

by Curt Esptein

Bombardier has reported that testing and validation for its WAVE (wireless access virtually everywhere) high-speed in-flight connectivity solution is nearing completion, following multiple successful tests aboard a Global jet. To prove its point, the

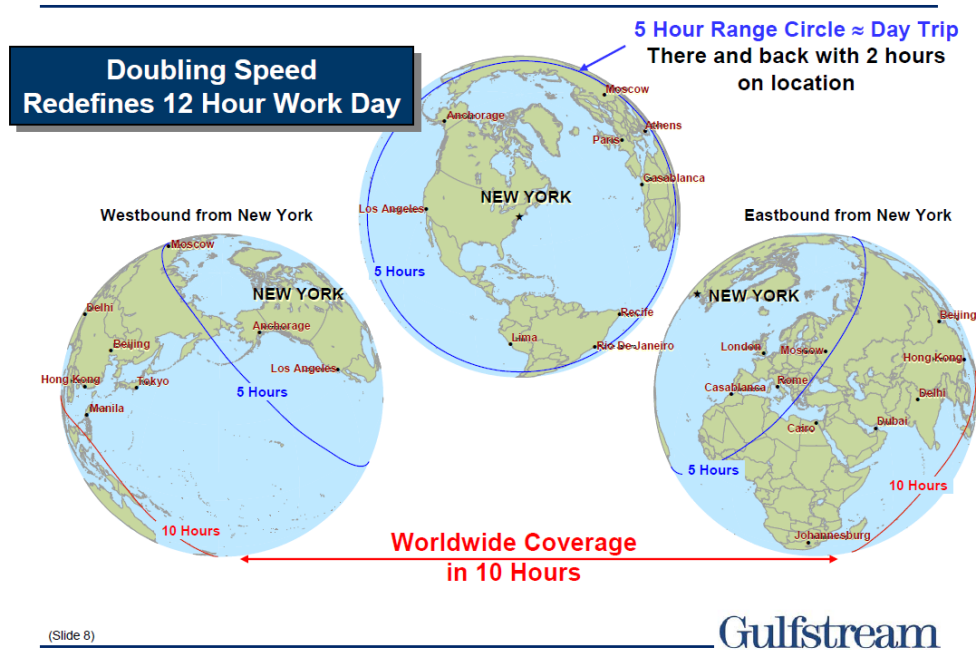
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# Supersonic Aviation Considerations

## Expanding the Range of the Two Business Days

– Worldwide Coverage in 10 hours- 1 Stop



# Supersonic Private Aviation

## Expanding the Range of the 12 Hour Business Day

### The 4,000 NM Supersonic “workday” Redefining The “Day Trip” from London

- 5 Hour range circle ~ 1-Day Round Trip Destinations
- There and back with 2 hours on location = 12 hours



**Doubling Speed Redefines  
12 Hour Work Day**



# The M 2.0-5.0 Hypersonic Business Jet

## The World in One Business Day

- The Hyper Mach Case
- Initiative, realities and range
- Challenges and Opportunities
  - Main Challenge Power Plant: two stage scram jet is favored, ex-military X-51 Waverider
  - Opportunity is ULR 4,000-7,000NM range
- Edge of Space: Above NAS 60,000-100,000 ft., challenge for routine launch/re entry
- Pressurization/Acceleration-Deceleration comfort issues (must be <2.0-2.5 G)



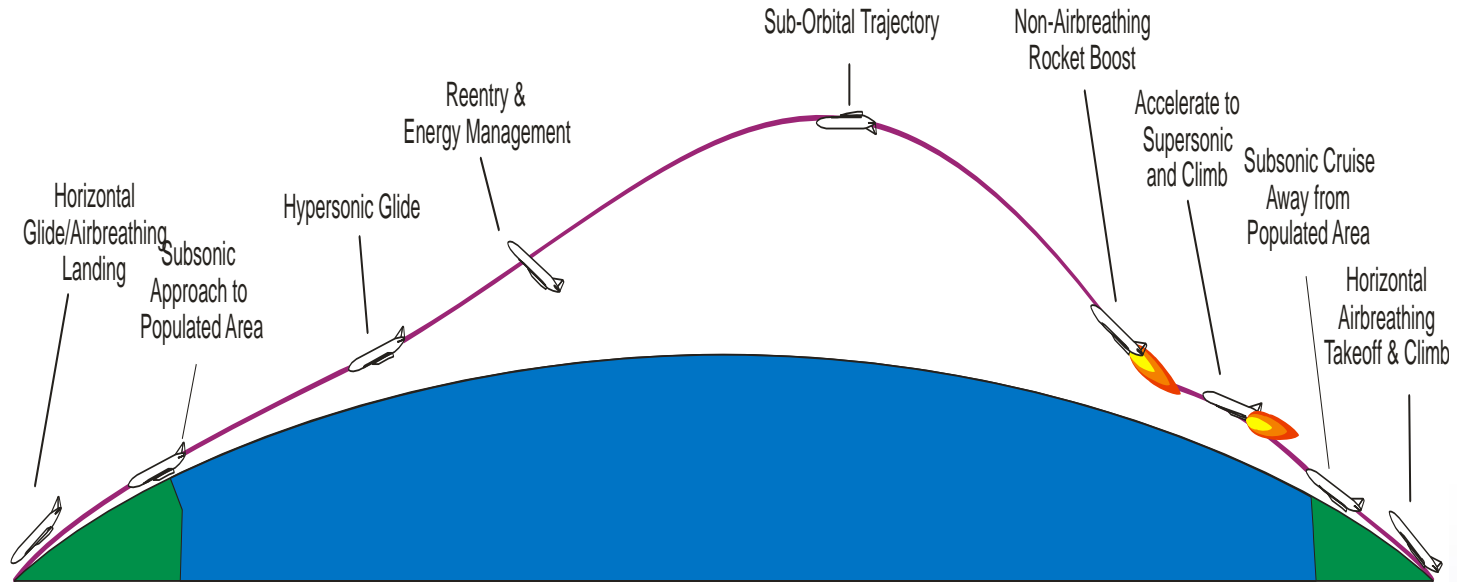
# Suborbital Private Jet Concept Programs

## The World in a 12 Hour Working Day

- Europe: EADS Astrium Space Plane
- <https://www.youtube.com/watch?v=4DFx0O9AtyY>



# The Suborbital Private Jet Flight Profile At a Glance



Flight	Distance	Airliner	P2P Rocket plane
New York – Los Angeles	<b>2,500 miles</b>	<b>5 hrs</b>	<b>1.0 hr</b>
Memphis – Paris	<b>4,600 miles</b>	<b>9.25 hrs</b>	<b>1.25 hrs</b>
Los Angeles – Tokyo	<b>5,500 miles</b>	<b>12 hrs</b>	<b>1.5 hrs</b>

# The Ultimate Answer Suborbital Airliner

## The World in a 12 Hour Working Day

- The Lapcat-Scimitar Engine-Vehicle Concept- A GAME CHANGER!
- Nov 2015-BAE bought 20% stake in Reaction Engines-SABRE technology
  - Predicted SABRE entry into suborbital demonstration 2025-2030
  - Commercial suborbital vehicle operations and applications 2030-2035
  - First envisioned application will be a small vehicle-business jet

[http://www.reactionengines.co.uk/vid\\_lapcat.html](http://www.reactionengines.co.uk/vid_lapcat.html)



# Conclusions and Forward Thoughts

## The World in a 12 hour Working Day!

- **Industry Fundamentals**

- Concept proven by Spaceship 1 in the USA 2004 (Scaled Composites now Northrop Grumman)
- Concept developed for space tourism by Virgin Galactic and XCOR as leaders with Spaceship 2 and Lynx Series
- Supersonic technology M 1-2 has a robust niche and will assist in maturing,
- Hypersonics and suborbitals M 2-5, and,
- Suborbital M 5-10
- Investment and time required:

1. Experimental Space Tourism vehicle	3-5 years	.5-2 US\$BB
2. Hyper and suborbital power plants	5-7 years	2-5 US\$BB
3. Freighter and special mission vehicle	10-15 years	5-15 US\$BB
4. Passenger charter and scheduled vehicle	15-20 years	10-25 US\$BB

- **Possible Markets**

- A 10-30% of all the LR/ULR/XLR range market/Circa 300-950 aircraft and spacecraft
- Unpredictable market reactions, requests and size (think explosive jet aircraft growth in the 60-70's!)

# Contact Information



NBAA2015



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