



Global
connected
Aircraft

2015
Summit

Welcome

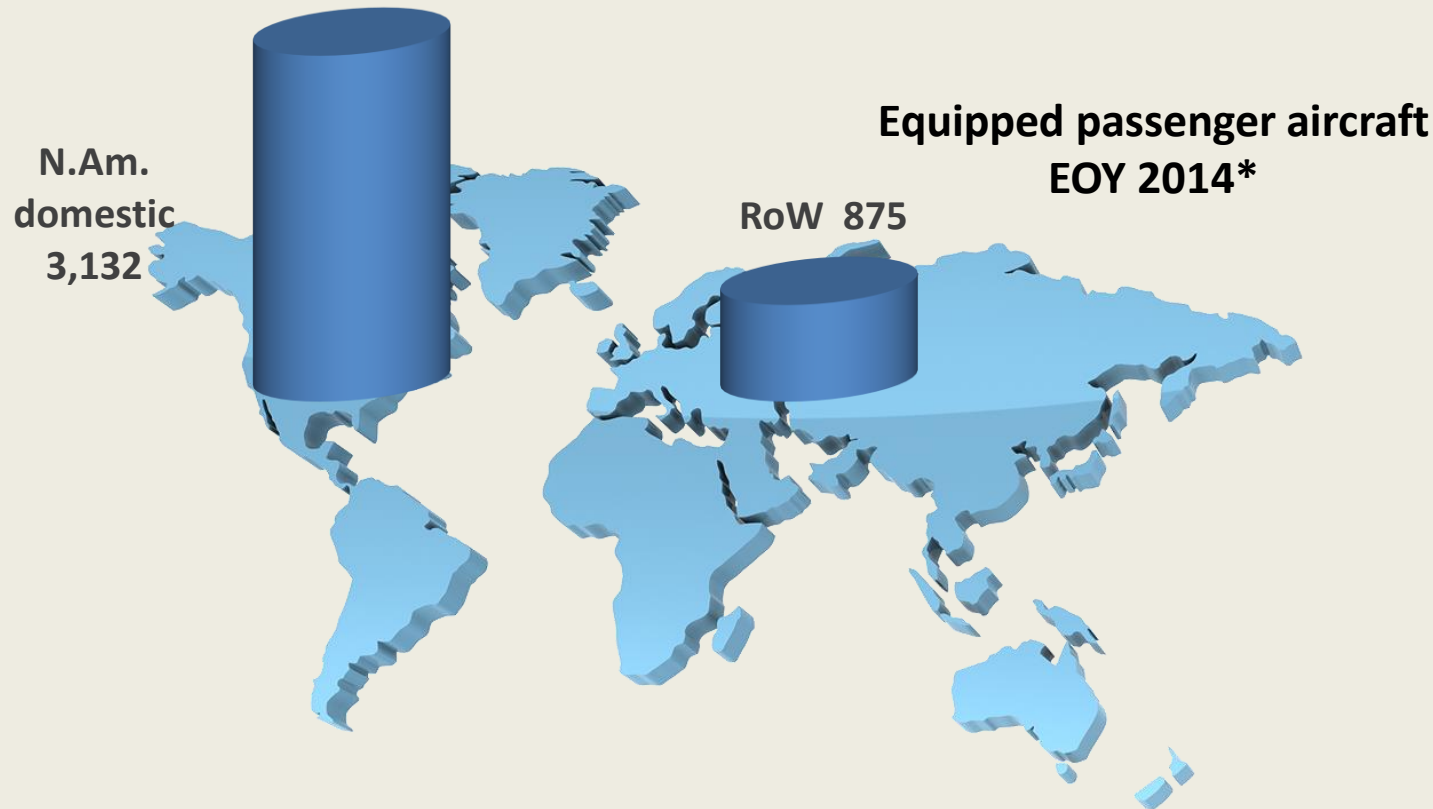


The good, the bad and the ugly...



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The good: Deployment now expanding rapidly outside North America



- “83% of passengers outside the US are interested in inflight connectivity vs 74% in the US” (Gogo survey, May 2015)

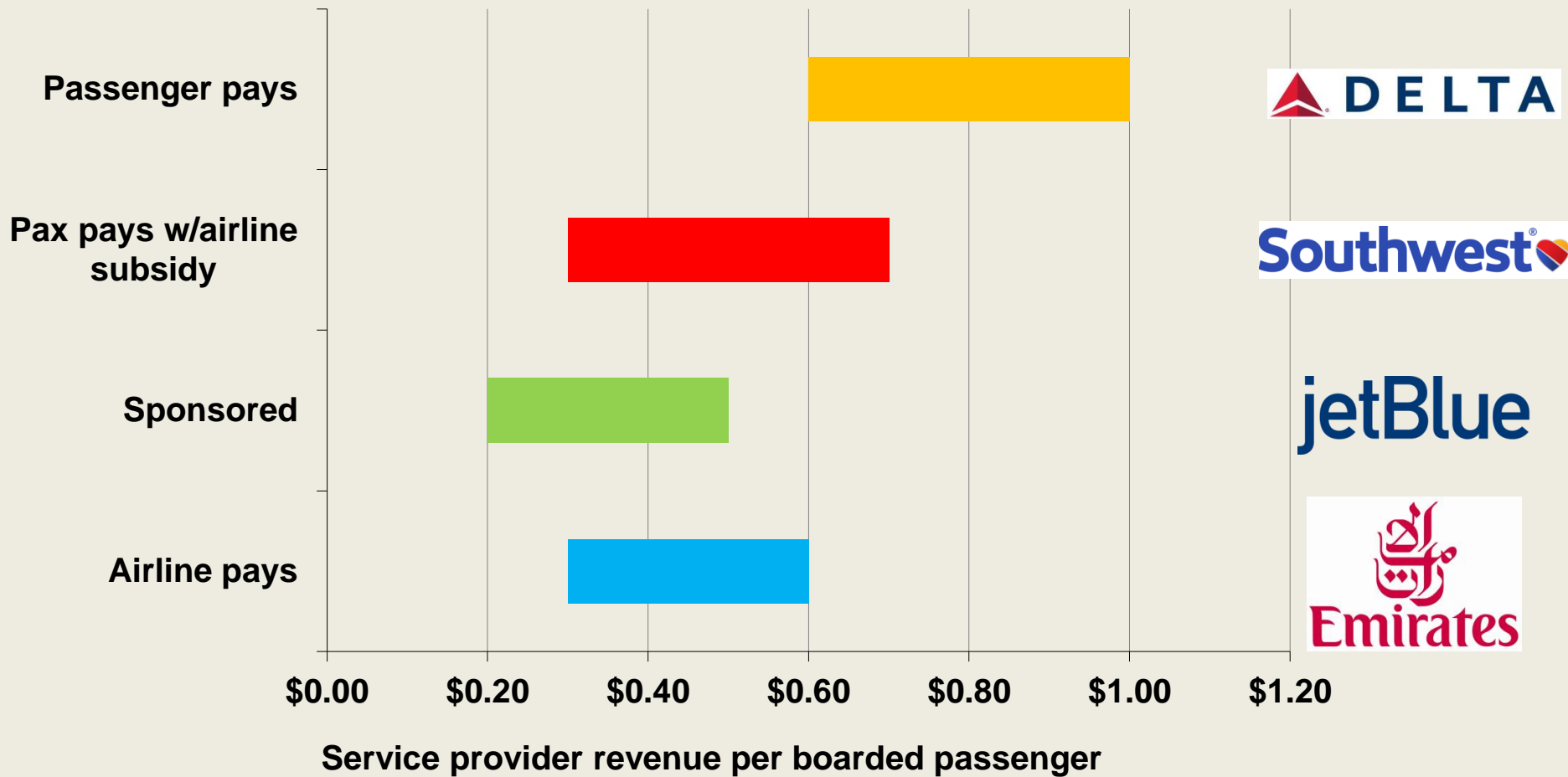
*TMF Associates estimates

New models for monetization emerging



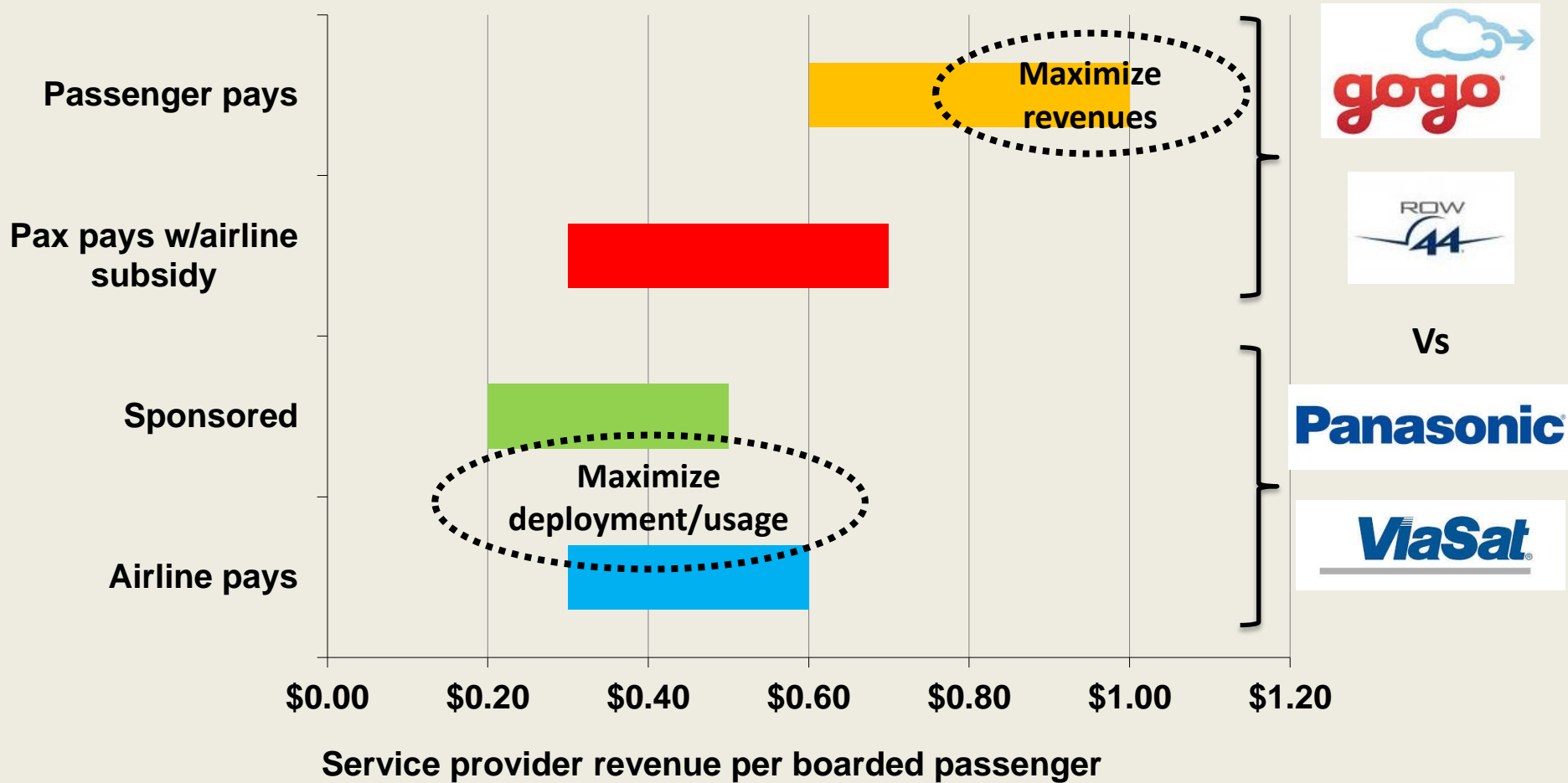
- “Ultimately, we believe that onboard Wi-Fi will become a free service, and a standard that customers will expect on a full service airline...But we face a slew of technical limitations – from speed and bandwidth availability and cost, to the supporting hardware and software” (Emirates, Nov 2014)

But sources of revenue are limited



TMF Associates estimates

Is it best to maximize revenue or usage?



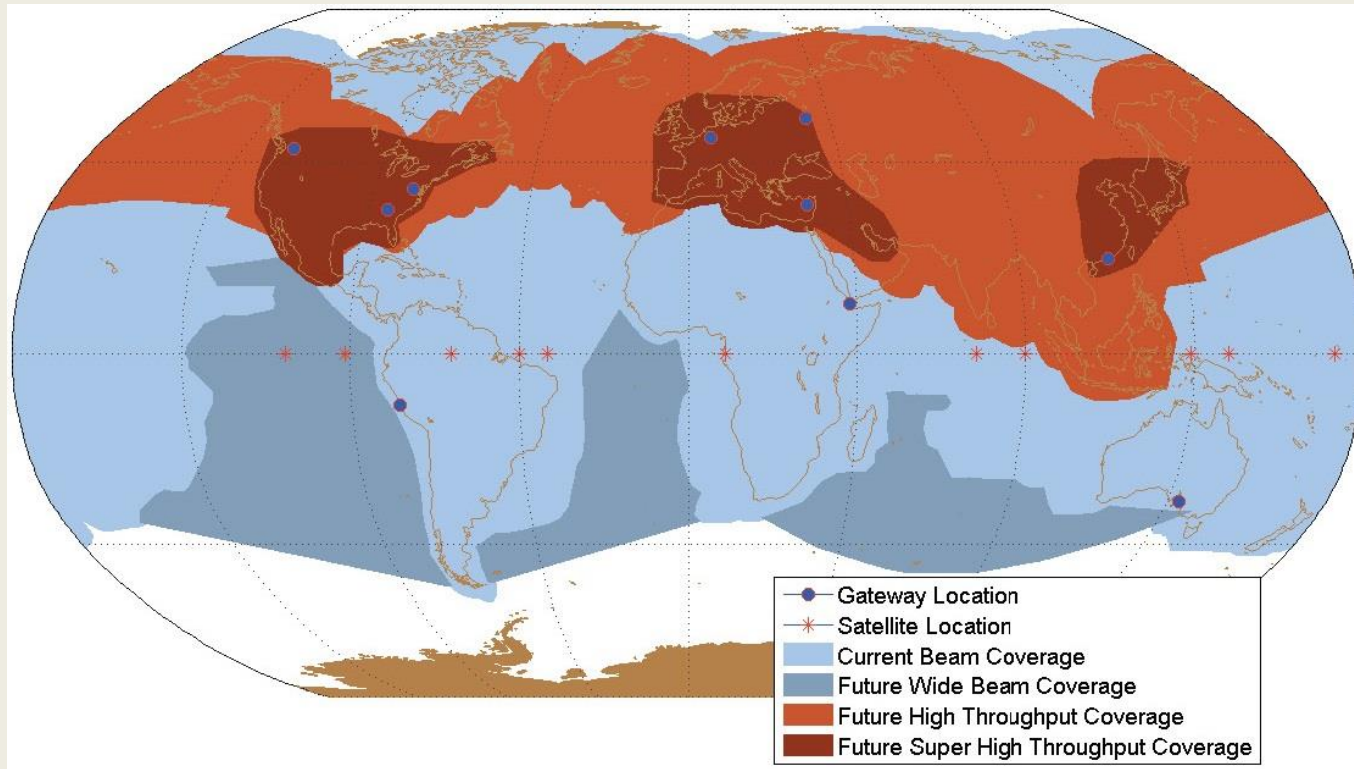
TMF Associates estimates

Different approaches are required...

| | Maximize usage/deployment | Maximize revenues |
|---------------------------|--|--|
| Available revenue/GPO | \$0.30-\$0.50 | \$0.80-\$1.00 |
| Take rate | 30%+ | ~7%-8% |
| Revenue per session | \$1-\$2 | \$10+ |
| Best suited provider type | Equipment focused | Service focused |
| Example providers | Panasonic, Thales | Gogo, Inmarsat |
| Pre-requisites | Low cost capacity | Control over retail pricing |
| Best suited airline type | Short haul differentiated Long haul premium | Short haul and long haul network carriers |
| Example airlines | JetBlue, Emirates | Delta |

- “A number of airlines who today have paid service are planning to go to some level of free of charge...we can expect some radical changes in the next 24 months and you may end up with a lot of people on free service, or if in first or business class or a platinum or gold frequent flyer, you get Wi-Fi for free.” (David Bruner, Panasonic, quoted by Runway Girl Network, Jan 2015)

And cost of capacity becomes all important



- “This new hybrid S-band network...through air to ground technology [will be] delivering unparalleled levels of speed and capacity, 60, 70, 80 times faster even than high throughput satellites” (Rupert Pearce, Inmarsat, March 2015)

Source: Planned coverage map from Panasonic, August 2013

The bad: Ultimate market size is uncertain

- Clear that availability of connectivity impacts (business) passengers' choice of airlines, but not much evidence to date how speed/cost of connection impacts choice
 - Do airlines just need to tick the box on connectivity?
 - Is there a minimum level of performance (is L-band insufficient)?
- Passenger perceptions are that performance of most inflight connectivity services is poor
 - Are expectations likely to always be unreasonable?
 - Does this impact willingness to pay (regardless of *actual* quality)?

And expectations are excessively high...

- “Connecting aircraft is more valuable than you think” “0.84% of asset value per year [would equate to] \$0.8M ARPA, \$14B-\$30B industry” (Gogo investor day, June 2014)
- “Globally...this [enhanced IFEC market] is a \$5B revenue opportunity from services and content to consumers, excluding hardware” (LEK Consulting on Global Eagle webcast, October 2014)
- Portal services account for only “marginal” revenues today, according to Gogo and Global Eagle SEC filings
- And operational services are unlikely to save the day (average spend on L-band operational services is <\$1000/plane/month)
- EOY 2014: 4K aircraft @~\$120K/year = ~\$500M run rate

The ugly: Consolidation is “inevitable”

- “How much blood do you have in your pockets? You’re bleeding out all this time. Everyone says, ‘Oh, it’s not a problem.’ But it is a problem. It is a real problem.” (David Bruner, Panasonic)
- “There are too many suppliers, not enough airlines” (Don Buchman, ViaSat)
- And Inmarsat GX (and European ATG network) hasn’t even entered the market yet...

Quotes from Runway Girl Network article, May 11, 2015

But there's no-one to act as consolidator...

- Many thought mobile operators would enter the market by buying a service provider
- ...but AT&T's exit has likely caused some rethinking
- And no-one wanted to buy Row44 last year (or this)

- Large, long term satellite capacity commitments make consolidation even more difficult
 - What would another provider do about Row44's \$290M of satellite capacity commitments with SES?
 - Recall that Boeing had to make substantial termination payments to SES when it shut down Connexion

So for the time being airlines benefit...

- Great deals apparently on offer for anchor tenants on Inmarsat's European ATG/GX network (BA, Lufthansa)
- Global Eagle required to deliver a "leading Internet and Internet based entertainment services system" to Southwest and adjust prices if alternative technology like HTS results in "modified cost structure"
- For providers, connectivity can be a loss leader to defend IFE business
- Satellite operators are competing to secure exclusivity with large mobility customers via significantly discounted Ku-band pricing

When will the music stop?



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