



Unlocking UAS with the CNS key

Why Communication, Navigation & Surveillance (CNS) infrastructure is the capstone of the UAS ecosystem and why we need to focus on it now

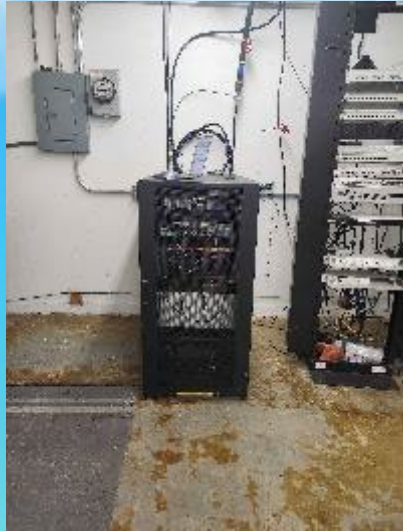
Bill Tolpegin

CEO



Good morning, Revolution Aero!









CNS in the NAS: It's A Hard Problem For Industry To Solve



Communication

> Traditional Aviation

- Most capacity utilized by large air carriers
- Satellite alternatives are emerging but are expensive

> Emerging Aviation

- AURA is only entrant building an aviation-dedicated national network for CNPC
- But! There are many needs beyond CNPC



Navigation

> GPS is “Gold Standard” but jamming and spoofing are real issues

> Other navigation aids rely on WW2-era technology

> Navigation services suitable for sUAS are not likely robust at altitude



Surveillance

> Lack of available suitable spectrum

> Prohibitive cost of building sites

> Current FAA RADAR

- 2D – No exact positioning
- Private, no access outside of USG

> ADS-B

- 3D awareness but relies on GPS
- Not all aircraft are equipped – bad guys don't use ADS-B!

CNS Enables the UAS and sUAS Markets. But!...



Regulations

- › The NAS needs a major technology/infrastructure upgrade
- › CNS is not part of the OEM/Operator certification journey
- › The FAA is relying on industry to figure it all out



Operations

- › CNS Service Providers are developing their own solutions in silos – and assuming away the hard parts
- › Key areas (the hardest parts) are not being focused on holistically



Economics

- › OEMs/Operators are hoping the CNS infrastructure will be completed for them before their EIS
- › They are also praying that the economics won't blow up their business models

So, How Is Industry Doing?



or



The Take Away: A Fully Integrated CNS Infrastructure Stack

- › Supports a solution that scales
- › Reduces deployment costs
- › Presents the path to unit economics that work for all members of the ecosystem
- › Empowers compliance
- › Gives regulators confidence their rules work
- › Positively impacts performance
- › Provides a simplified customer experience
- › Accelerates time-to-market for each and every one of us



**CNS infrastructure is the capstone
of our UAS ecosystem.**

Because divided we fall, together we fly.





Thank you.

Bill Tolpegin

CEO

btolpegin@auranetworksystems.com