Super Wireless Dual Use Convergence Enabling Secure, Resilient Wireless Bubbles for Distributed Multi-Domain Operations

Sun Global Broadband

SunGlobal Super Wireless

SGB – NTT Wi-Fi Connection: 1.7 Miles from Kaimana Beach Hotel

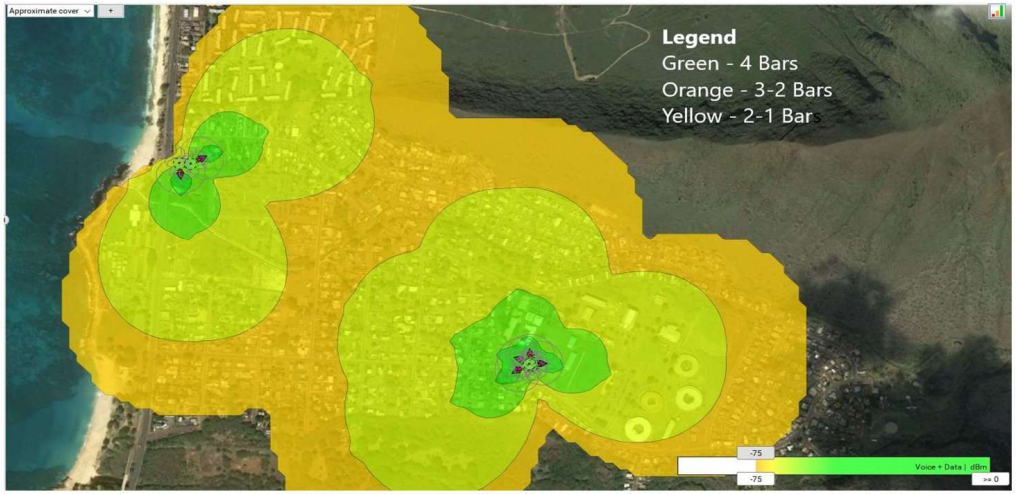
SGB Repeater at the Hilton Lagoons Shrimp Truck (Hawaii 5-0 Site) disabled for test with NTT Broadband Engineers

NTT Broadband Cell phone connects via SGB's Super Long-range Wi-Fi to the New Otani Hotel Access Point system that is 1.7 Miles away!

Problem: Waianae Coast "Digital Divide": Limited Coverage from the Hawaii Fiber Carrier

Problem: Lack of Digital Equity – Inconsistent Bandwidth and coverage in the Waianae Cable Coverage Area

Super Wireless – SGB Overlays Carrier Systems for Continuous Internet Bubble!



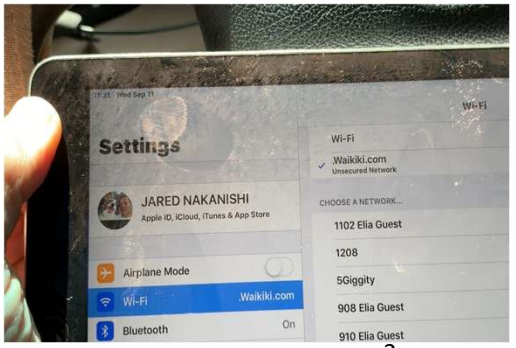
Smith & Sun, PTC'22

SunGlobal Super Wireless

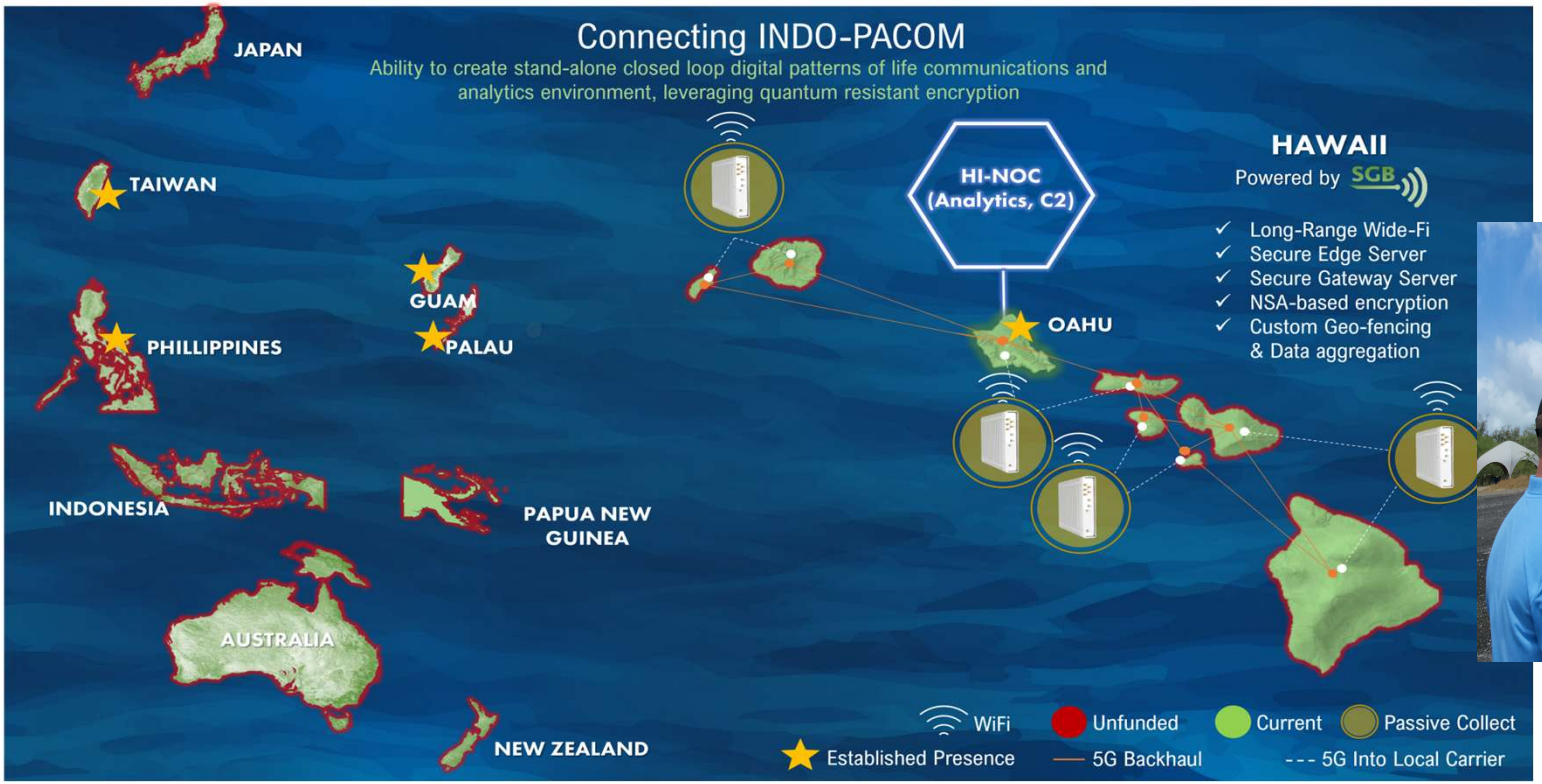
85 Waikiki Super Wireless AP's replaces over 2,000 typical AP's for 13 Mile Coverage

35 MPH DRIVING WITH SUPER WIRELESS EXCLUSIVE NON-MESH MOBILITY

"I CAN'T BELIEVE IT'S NOT CELLULAR!"

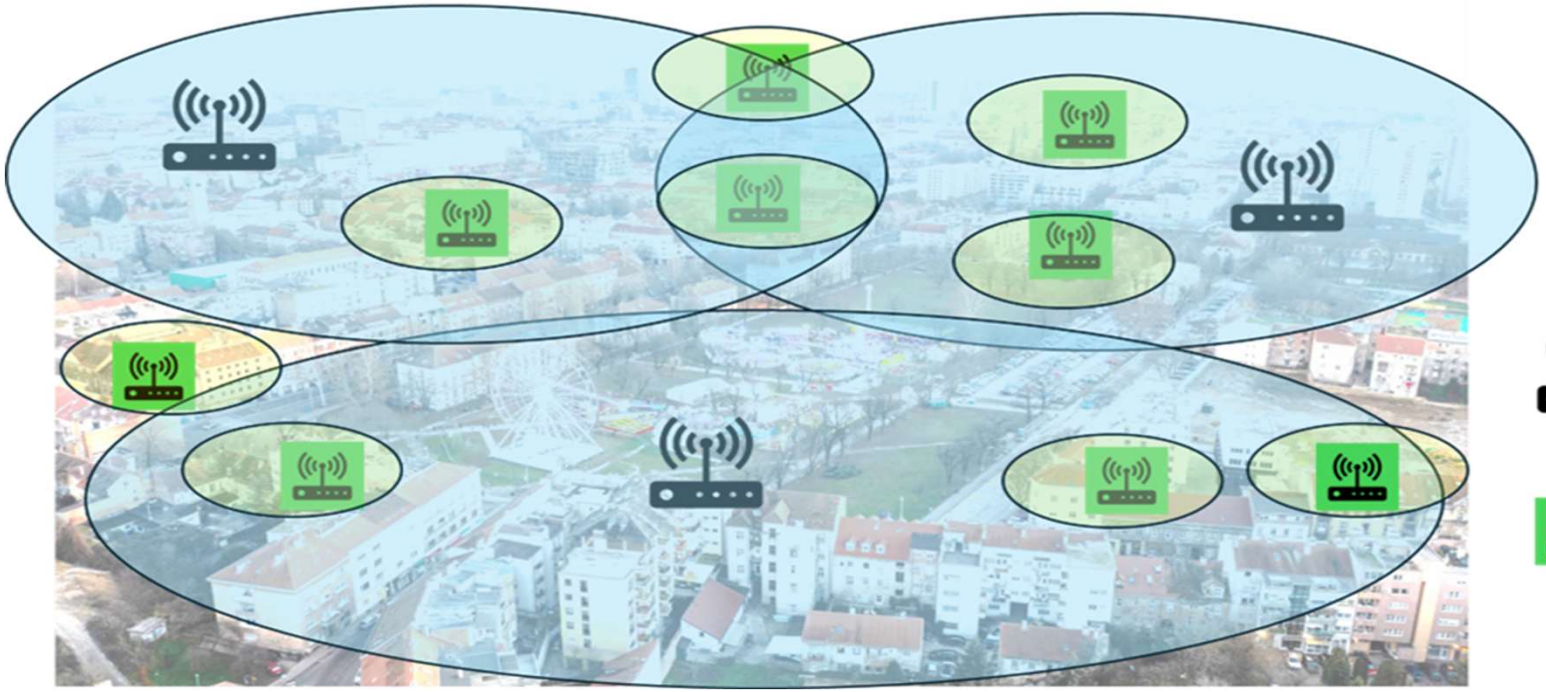


SAF CDM and PACAF Briefing for Air Mobility and Indo-PACOM AOR



One Mile Bubble PACAF Setup (Under 1 Hour with 100% APL & ATO Super Wireless @ Hickam Base X, NAS PAX River, Scarlet Dragon, Calgary Pilot for NATO

Revolutionary Mobile Wi-Fi Eco-System for Smart City, Public Safety, Golden Dome & Enhanced Border Protection



Bubbles are areas of SunGlobal designed coverage with support for seamless mobility

Macro site

Micro site

SunGlobal's revolutionary Super Wireless includes mobile Wi-Fi - a breakaway from traditional cellular permits and licensing models. Designed for critical applications, transactions & encrypted persistent data capture. Super Wireless is positioned as a revolution in the wireless and global AI industry. Built with Secured Global AI blockchain capability.

SunGlobal Super Wireless

FUTURE OF AUSTERE ENVIRONMENT COMMS-INTEGRATION OF 5 UNIQUE TECHNOLOGIES IN ONE DEPLOYABLE SOLUTION (DOD APL & ATO)

1. High Throughput, Low-Latency, 1-Mile+ Super Wide-Fi Antenna for Macro Coverage
   - ✓ Macro Cell Antenna Array
   - ✓ Paired Outdoor/Indoor Extenders
   - ✓ Existing Wireless Network Integration with SGB Network
2. ATO Secured Edge Server for Real-Time Switching of AP's and Bubble Networks
3. Mobility with Secured Gateway Server for Real-Time Backhaul Switching
4. Secured Encryption for VPN
5. DoD Certified Blockchain Ledger System - Geo-fencing & Data Aggregation

INDO-PACIFIC USE CASE: DOD UTILITY

UNCLASSIFIED

Stable Communications | Private Network | Novel Collection Access for Austere Environments

Ed Sun
CEO
Sun Global Broadband
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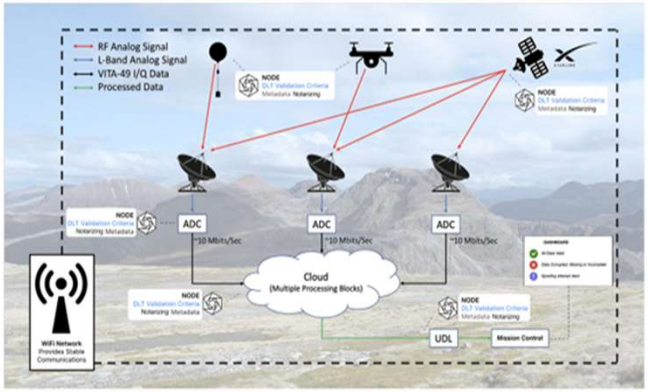
Contested Intelligence & Logistics – Stable & Secure communications in the Indo-Pacific

OPERATIONS / RELEVANCE: Indo-Pacific Combatant Commands as well as the Joint Forces need stable and reliable communications in austere/disadvantaged areas throughout the Indo-Pacific AOR to ensure persistent C5ISR and logistics requirements required in a contested geographical environment.

Sun Global Broadband's technology environment will enable the advancement of reliable, secure and obfuscated communications both in remote and adjacent geographic regions that are populated. The Wide-FI bubble solution can be stood up in hours and can easily integrate with other communication protocol form factors and star link terminals. The solution set is scalable , cost effective and interoperable with other technology capabilities. Ease of deployment is amplified by wi-fi pop-up antennas that are not regulated by the geographic locations where they are deployed.

OPERATIONAL OBJECTIVE(S):

- Pop-up public or private networks in hours that provide stable connectivity in austere environments.
- The ability to create novel backhaul analysis that can provide attribution and insights.
- Non-attribution overlay with existing telecommunication | Wi-Fi- networks



The communications backbone for Scalable Security and Secure Multi-Author Data Exchange

TECHNOLOGY / ENGINEERING SPECIFICATIONS:

- Macro AP Antennas & Pico Cells
- Hypergraph Transfer Protocol (HGTP) - Infinitely Scalable & Highly Energy Efficient
- Solar, UPS, Battery, Rolling Case with extended antenna mount
- Backhaul off Macro Hub, Network Router |Switch, SDWAN, Wireless Sensors
- NSA developed Protocol Free Encryption

Additional Features:

- Private, transactional, permissioned blockchain networks to provide a secure, immutable and auditable record of C2 mission communications o forward locations

TRL: Current TRL 8/9; certain novel capability sets require integration with core wide-fi solution.

RELATED EFFORTS: Broad interest currently expressed across multiple Armed Services branches that include novel use case discussions both in the EUCOM and INDO-PACOM AORs. Current deployed efforts have been commercially focused, to include active instantiations in Honolulu, Hawaii.

COLLABORATION PARTNERS: SAF CDM, PACAF, PACFLT, Specific DIB parties.

LETTERS OF SUPPORT:: International Carriers (BT, NTT, KIDDI, Soiftbank, ATT, Dr. Leif Rosenberger, Fujitsu JAIMS,

Last Updated: November 10, 2023

EXPIRIMENT OBJECTIVE

OBJECTIVE:

- Sun Global will develop/produce a prototype that demonstrates the effectiveness of a Wide-FI solution instantiation in an actual austere environment setting for an existing military area of need.
- Sun Global will deploy a private 1-mile WIDE-FI Bubble networks to provide secure, stable mission communications. This project will develop/demo secure comms within a specific INDO-PACIFIC use case.
- This project will further develop and leverage Sun Global tech developments to explore interoperable, interconnected WIDE-FI bubbles that can provide a seamless communications network across expansive geographic regions such as the Philippines or other island nations in the South China Sea.

TEAM:

- Sun Global's team includes experts in Securend Networks, Analytics, Encryption, SASE Gateway Technology, International Carrier
- Sun Global's Advisors include technical design team from Verifone, HP Labs, KDDI, NTT, DIA, NSA, DHS
- POC for all Sun Global Federal Related Activities:
  - Ed Sun, CEO, esun@sunglobalbroadband.com

UNCLASSIFIED

USE CASES BRIEFED

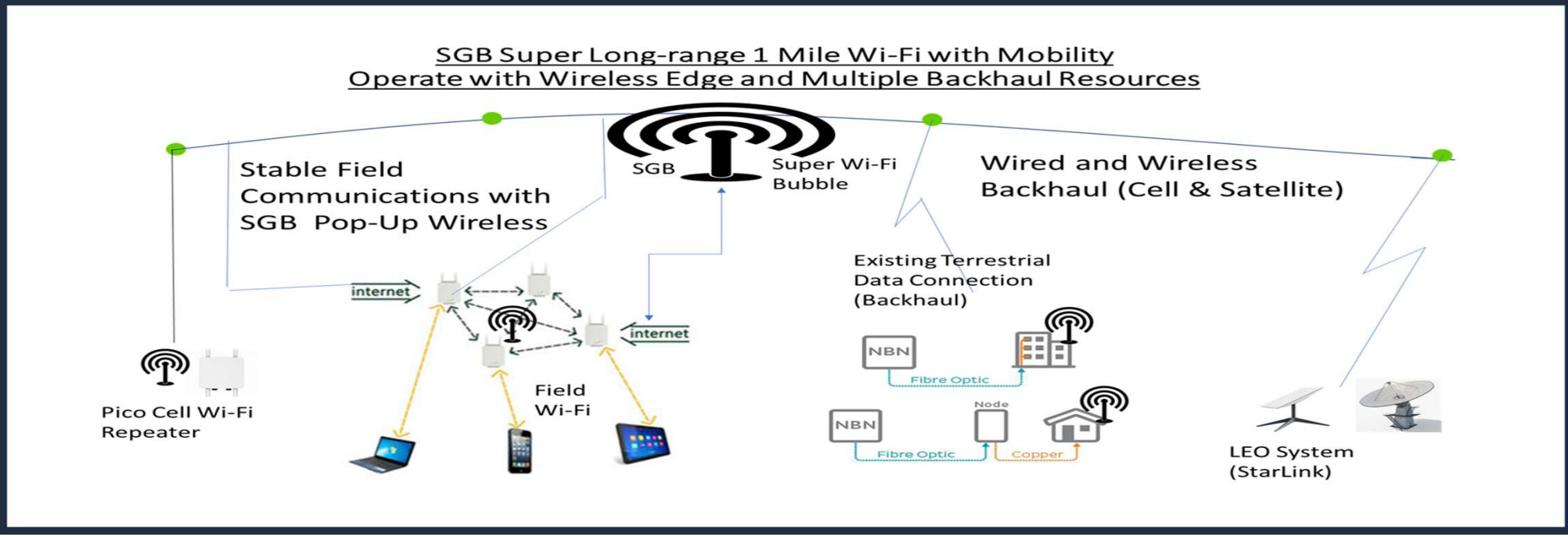
- INDOPACOM: Collection
- MARFORPAC
- USARPAC: Exercises/Operations
- PACFLT: Ship to Shore
- SAF CDM: Comms in austere environments
- PACAF:
- USTRANSCOM: Logistics
- OUSD (R&E): Contested Logistics
- Lockheed Martin: INDOPACOM J8 Comms
- SOFPAC: Remote area/moving assets.

ACQUISITION OPTIONS

- 8s Direct Sole Source Award: No J&A needed
- MIPR $ to existing vehicle
- Sponsorship for JMAD/DIUX consideration

TECHNOLOGY OFFERS REVERSE 5G FOR REDUNDANCY

- Traditional 5G requires global backhaul and full core, and then Wi-Fi “hotspots” on edge
- Provides a global Super Wireless Wi-Fi as middle and last mile; ability to add private 5G on the edge through licensed bands
- Terminate to the proprietary EDGE 5G-X to serve as ATO SD-WAN
- This architecture also enables us to provide analytics on ALL data being routed, as well as unique routing possibilities and signature reduction possibilities



Summary Benefits of Unlicensed SunGlobal over other Carrier Wireless for DoW & National Security

The Problem with Traditional Licensed Wireless Networks

- **High Deployment Costs:** Building and maintaining cellular infrastructure is capital-intensive
- **Delayed deployment:** Regulatory, Zoning and technical complexities impacts timeline
- **Coverage Gaps:** Urban canyons, large buildings, and remote areas often suffer from poor cellular reception.
- **Network Congestion:** With the surge in data consumption, cellular networks frequently experience congestion, leading to degraded user experiences.
- **Scalability:** Existing network not adaptable to varying coverage needs without extensive infrastructure changes.

Our "Revolutionary Super Wireless" Solution

- **Cost Efficiency:** Utilizing existing infrastructure reduces deployment and maintenance costs. 1/3 the cost of Cellular.
- **Rapid Deployment:** Up to 10X faster deployment compared to building new cellular towers
- **Enhanced Coverage:** Seamlessly extends wireless connectivity to hard-to-reach areas, both indoors and outdoors.
- **Alleviating Network Congestion:** Offloads data traffic from cellular networks, improving overall performance.
- **Scalability:** Easily adaptable to varying coverage needs without extensive infrastructure changes. In most cases, multi-country deployments avoids costly permits for unlicensed Wi-Fi.
- **Mobility:** SunGlobal Super Wireless "Wi-DAS" allows for mobile service tested up to 40 MPH without using a Wi-Fi repeater, Mesh, or portable router.
- **Secured:** Encrypted Authentication, Transport and Data Ledger for Network Assurance.

SunGlobal Super Wireless

PROJECT AND TECHNOLOGY VALUE-ADDS

Persistent Passive Data Collection

Reverse 5G

Controlled Digital Patterns of Life Backhaul

Core Capabilities are TLR 9

Stable & Rapid Deployment of Comms in Remote Areas

DoD/IC Developed/ and or Validated Encryption

Geo-fencing Insights & Solution Architecture

UNIQUE VALUE PROPOSITION

VALUE	DESCRIPTION
Rapid Deployment	Pop-up in ~2-4 hours with no permitting requirements
Portable, Small Form Factor	Mobile Wireless "Ground Station", configured as 2-backpacks or Pelican Case, Solar Powered with Satellite Backhaul
Low Latency	Ground video and voice communications
Encrypted Wireless LAN	Interoperable w/ Starlink, wireless and cable backhaul
Integration between Secure and "Open Wi-Fi" protocols	Single network that integrates multi-protocols
Mobility	Seamless Up to 40 MPH for vehicles and troops
Scalable	Single instance to multi-country w/ no permitting
Low Power	½ watt Wi-Fi versus 600 watt Cellular (no generator or Truck Roll)
Low Cost	1/10 the cost of other carrier systems

CHOOSE YOUR CONFIGURATION

STABLE & SECURE COMMS

PRIVATE NETWORK

OPEN NETWORK

PATTERNS OF LIFE ANALYTICS

NON-ATTRIBUTION

INTEROPERABLE WITH ANY CARRIER OR IOT DEVICE

SEAMLESS DOD & LOCAL COMMUNITY BENEFITS

Edward Sun, CEO & Chairman

SunGlobal Super Wireless

Backup and Endorsements

SunGlobal Super Wireless

Why Sun Global Super Wireless for Wi-Fi Last Mile?
Revolutionizing High Speed Mobile Internet Connectivity

1. **Portable and Quick Deployment** -. *Use of existing infrastructure network redundancy and resilience with unlicensed. Unlicensded / No-Permit technology.*

2. **Mobile Wi-Fi** - *Carrier Grade Performance.*
   - » *Over 90% of all Cellular, Fiber and Cable Data is connected by Wi-Fi*

3. **Low Cost, Low Power, Symmetrical** – *1/3 to 1/10 the cost of other last mile technologies, safe ½ Watt Radios, Symmetrical Upload & Download.*

4. **Public Safety with Continuous Service from Indoor to Outdoor** – *Housing & Urban Development*

5. **International Standard for Secured International Private Networks** - *Block chained* secured commerce for private networks

6. **Extended Coverage & Geofencing** – *AI Data and Analytics, one-mile+ Wi-Fi bubbles for Fiber, Cable, Satellite and Starlink*

SunGlobal Super Wireless

Immediate Needs for Convergence, 1-Mile+ Wi-Fi Bubbles

a. **Telehealth/Telemedicine**: Rapid, efficient Telehealth, esp. public health activities (WCCHC Partner)

b. **Housing and Urban Development**: Gov't Compliance, Mark Dev. Hawaii Assisted Housing / DHHL on Oahu and Kauai.

c. **Tourism, Smart City and Satellite City Hall**: Super Wi-Fi Hub for community Bubble and Community Center needs Wi-Fi.

d. **Lifeline: E911** Coverage for Community – Community Needs improved coverage in Ma`ili and parts of Nanakuli and Waianae. Improved ability to call.

e. **Agritech**: Outdoor coverage for Outdoor market and farmland coverage. Provides Mobile IoT data for new Smart Ag applications.

f. **Distance Learning**: Private and Public Schools and Public Broadcast (Olelo Partner)

g. **ISR:** Dept. of Defense and Homeland Security (PACAF, SOCOM, USARPAC, Navy, CBP, HIS)

h. **Mobile IoT for AI and Fusion Centers:** Texas A&M, Secured by Blockchain and Secured Global Routing

Getting Ahead and Staying Ahead of Threats

A Modular AI-Driven Platform for National Resilience and Operational Superiority

Multi-Domain Threats In Government, Defense, and Industry (e.g. Oil & Gas):

- 🛡️ Military / Defense Readiness
- 🔐 Cyber Risk Detection / Autonomous Incident Response
- 🌪️ Public Safety / Natural Disasters / Crisis Management
- ⚓ Border / Port Security / Critical Logistics
- 🏭 Commerce / Industry / Infrastructure Protection

DUST Platform Capabilities:

- ✅ Edge-to-Core Sensor Fusion
  Connects access controls, drones, biometric ID, K9 units, CCTVs, SCADA, and cyber logs
- ✅ AI-Powered Cyber Threat Detection / Incident Orchestration
  Automates triage, escalation, and live coordination during events
- ✅ Multi-Tier Intelligence Mesh
  Syncs corporate, industrial, and national defense visibility
- ✅ Event-Driven Command
  Enables real-time action across corporate security, emergency response, and government agencies
- ✅ Security Academy Mode
  Supports training simulation, certification workflows, and policy adoption

Sun Global Super Wireless Partners

Honolulu, Tuesday, April 26, 2022

Hawaii Tech Technology in the Aloha State

Home broadband Sea Life Park gets long-range Wi-Fi

Sea Life Park gets long-range Wi-Fi

Guests can connect while in Waikiki and share their on-site experiences live online.

By
Ryan Kawailani Ozawa
-
April 13, 2022

Photo by Paul Hanaoka on Unsplash.

Sea Life Park and Sun Global Broadband (SGB) have deployed the latest in communications technology to enhance the park visitor experience.

Visitors to the East Oahu marine park now have seamless Wi-Fi connectivity to share live video of their experiences with friends and family worldwide, post to social media, and in the near future pre-order meals and drinks remotely from anywhere within the Park.

"Fast seamless connectivity across the Park grounds will encourage social sharing and video streaming of the wide variety of the Park's activities, whether it be interacting with the dolphins or exchanging marriage vows at Seaside Gardens," explains Edward Sun, founder and CEO of Sun Global.

PACIFIC BUSINESS NEWS

New partnership to boost Wi-Fi access for Japanese travelers in Hawaii

Apr 27, 2018, 12:56pm HST

Sun Global Broadband and NTT Broadband Platform sign Memorandum of Understanding on Waikiki Wi-Fi services on April 26, 2018 at the Manoa Innovation Center. Pictured left to right: Hawaii Governor David Ige; Edward Sun, founder and CEO of SGB; N. Minamikawa, president, NTTBP; and Len Higashi, senior economic development manager, Hawaii Technology Development Corporation.

Hawaii-based Wi-Fi service provider Sun Global Broadband signed a Memorandum of Understanding with Japanese Wi-Fi service provider NTT Broadband Platform for services in Waikiki on Thursday.

The two companies said the collaboration is intended to create business opportunities between the two entities in Japan and the United States.

NTT BP President N. Minamikawa called the partnership "a significant step" for the Japanese company.

"Hawaii is one of the major destinations of Japanese travelers in the world," Minamikawa said in a statement. "Thanks to larger and challenging strategic scope of SGB and to strong relationship to local industry, NTT BP has been looking at potential of business with SGB for creating difference in Hawaii economy and contribution to local society."

Developers of SGB Super Wireless

- Verifone Inc. Founding and Development Team
- DoD Secured Blockchain Team
- NSA, DIA, and DHS Encryption Groups
- Former Director of HP Labs RF and Computer Team
- Homeland Security Team for MedStar EMS
- Certification Team for Homeland Fusion Centers
- Carrier Partners – AT&T, FirstNet, Cricket, NTT, KDDI, Global Reach / BT, Orange France, ANA

SG Super Wireless Network (Wi-DAS Border Tracking)

Goal: Capture User Device ID's for Border Crossing Individuals and Public Safety

A. Track User and ID Data Both Passively and Actively:
   1. Track devices on our network without login
   2. Track and count user devices as they pass by Wi-Fi DAS locations.
   3. Continuous tracking on SG Super Wireless Network

B. Use SunGlobal Super Wireless (Super Long-Range Wi-Fi DAS) as the Standard Platform:
   1. Reason #1: All people, and IoT devices Connects with Wi-Fi.
   2. Reason #2: Super Wireless does not require special licensed frequency equipment or SIM connection
   3. Reason #3: Can be deployed off-shore as commercial entity without special permits or licensing (World-wide 802.11 Standard).

D. Can enable Auto-Connect when using Wi-Fi captive portal
   1. Can use a check-box for registration, or;
   2. If not check-box, seek government exception for internet connectivity (single sign-on / global permission for anti-hacking permission)

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