BRIDGING THE INFORMATION DIVIDE:
OFFERING GLOBAL ACCESS TO DIGITAL CONTENT THROUGH A DISRUPTIVE CUBESAT CONSTELLATION

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USE CASES FOR OUTERNET

Global News and Information
- International and local news
- Agricultural commodity prices for rural farmers
- Healthcare bulletins
- Government notices

Educational Courseware
- WBEZ in Chicago was founded by the Chicago Board of Education to broadcast daily lessons and lectures during the polio epidemic in the 1940s
- Outernet will deliver open courseware materials for all ages

Application Delivery
- Software
- Wikipedia updates
- eBooks
- Games

Emergency Communications
- Disaster relief coordination
- Persistent communication with citizens when other channels are disrupted
- Public service announcements
KU-BAND SERVICE IS LIVE
A LIBRARY IN EVERY HOME

- FSS/Ku-band provides high speeds at very low cost
- Utilize existing DVB-S equipment
- Raspberry Pi hotspot for ¼ the cost of proprietary hardware
A BOOKSHELF IN EVERY POCKET

- Exploring the use of ISM, UHF, and licensed frequencies
- RF-front end, similar to a Square credit card reader
- Battery-powered wifi hotspot
$10 SOFTWARE DEFINED RECEIVER: rtl-sdr
PHASE I STUDY OBJECTIVES

• Assess the technical feasibility of the Outernet broadcast communications concept

• Evaluate the use of prevailing nanosatellite technology and rideshare launch opportunities to create a low-cost constellation

• Examine the application of new data protocols, asynchronous communications methods, and maturing schemes for establishing disruption-tolerant networks

• Solicit feedback from industry on the notional system design, development approach, and programmatic.
CONCEPT OF OPERATIONS

- Utilize a network of geographically distributed Mission Management Centers
- Outernet Service Operations Center, where overall system monitoring and management will be performed
- Offer an unencrypted data stream to enable reception by open-source (DIY) hardware or mass-produced, compatible receivers
NOTIONAL SYSTEM CONCEPT

- 1 MB of globally-accessible data per hour
- Existing state of industry
- 24 satellites in 4 planes
- Maximum 2U cubesat
- Target cost of $200,000 deployed
4 Planes x 6 Satellites, Walker Constellation

Latitude, deg

Total Daily Throughput, MB

0 50 100 150 200 250 300 350 400 450

Omni
Shaped
Turnstyle
THANKS!

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