ALTOBRIDGE™

THE ALTOBRIDGE LITE-SITE™

MOBILE CONNECTIVITY FOR THE LAST FRONTIERS

Our Solution

- Since 2002, we have developed and deployed low-Capital cost, low-Operating cost wireless solutions that provide mobile network operators with a commercially viable solution to connect unconnected rural and remote communities

- Our 2G and 3G technology is deployed on Tier 1 mobile networks in more than 30 countries globally

- Our Altobridge lite-site™ has been specifically designed to address the problem of rural connectivity. Our combined approach is unique in the following ways;

  - ✓ It is designed for communities with subscriber bases of between 500 and 2,500

  - ✓ It is Satellite Backhauled because fibre does not exist and microwave is cost-prohibitive to rollout to ultra-rural locations

  - ✓ It is Solar Powered to overcome the challenges of off-grid or unreliable on-grid power

  - ✓ It is a BSS-only (BTS + BSC) solution. No separate MSC. We interoperate with the mobile operators' existing core network so that they remain in control of billing, rating, Legal Intercept etc

# Customers, Partners, Investors

ALTOBRIDGE™

Customers

maxis.

CABLE & WIRELESS

orange™

indosat

Asiacell

tigô

TCC

Our Telekom

MobiCom

Omantel
Together

Partners

SAMSUNG

ERICSSON

ARGELA
it's the passion

Nokia Siemens Networks

K-NET
Optimized Network Solutions

ip.access

public wireless

Investors

intel capital

IFC
International Finance Corporation
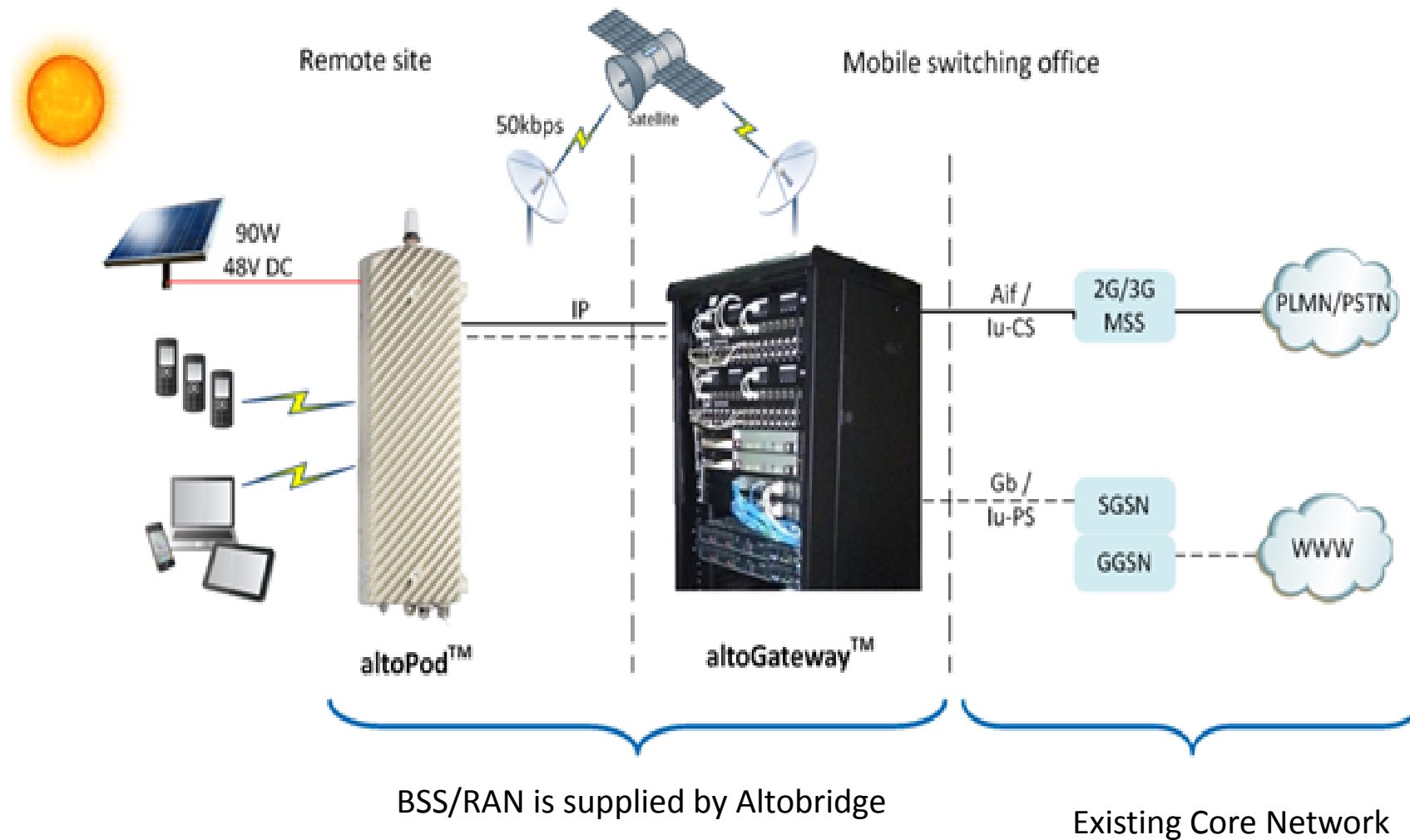World Bank Group

ENTERPRISE IRELAND

Altobridge in Africa

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- The Altobridge lite-site™ solution is currently deployed on 3 Mobile Networks in Africa. 2 additional network rollouts are imminent
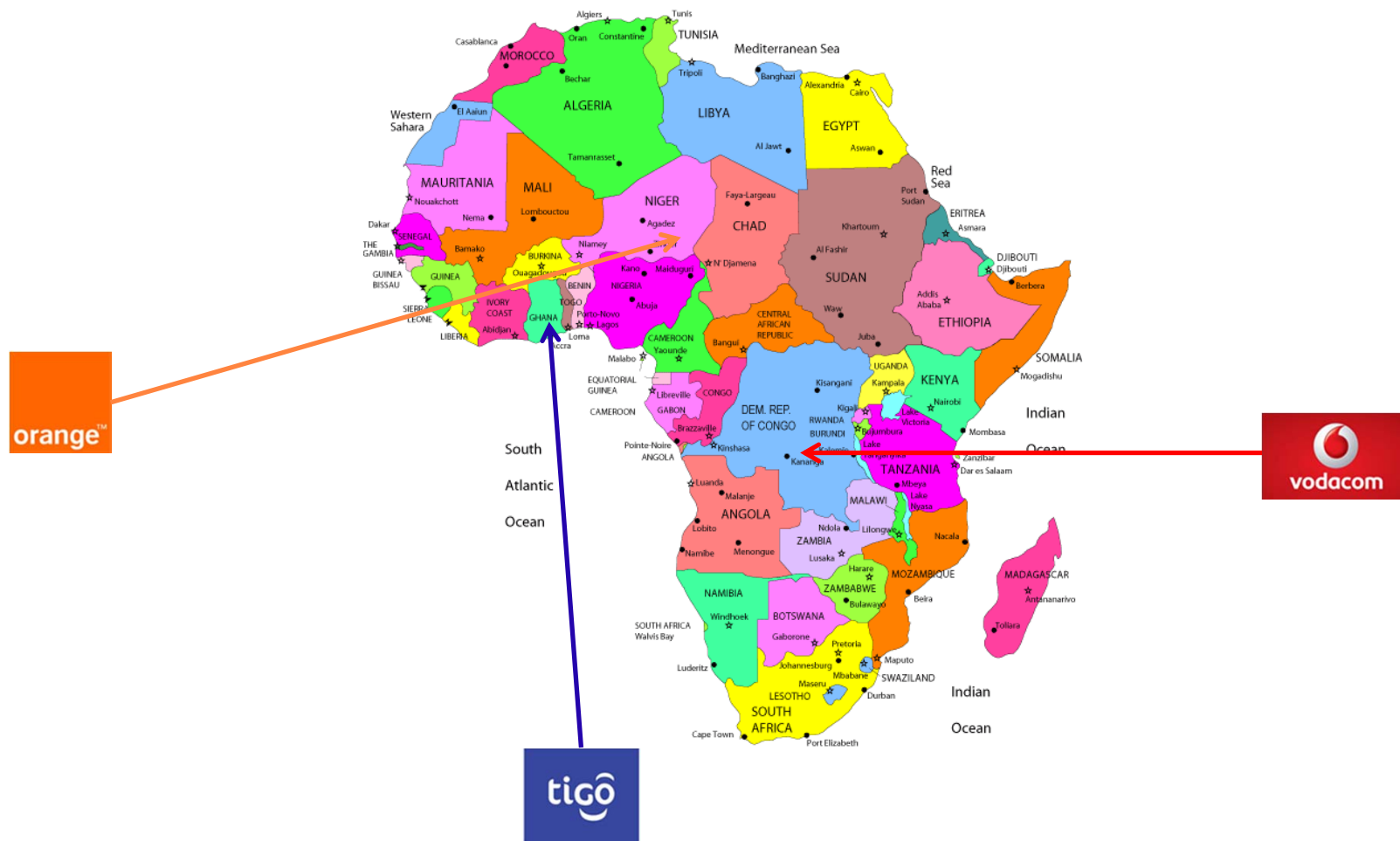
Altobridge lite-site™ Architecture

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BSS/RAN is supplied by Altobridge
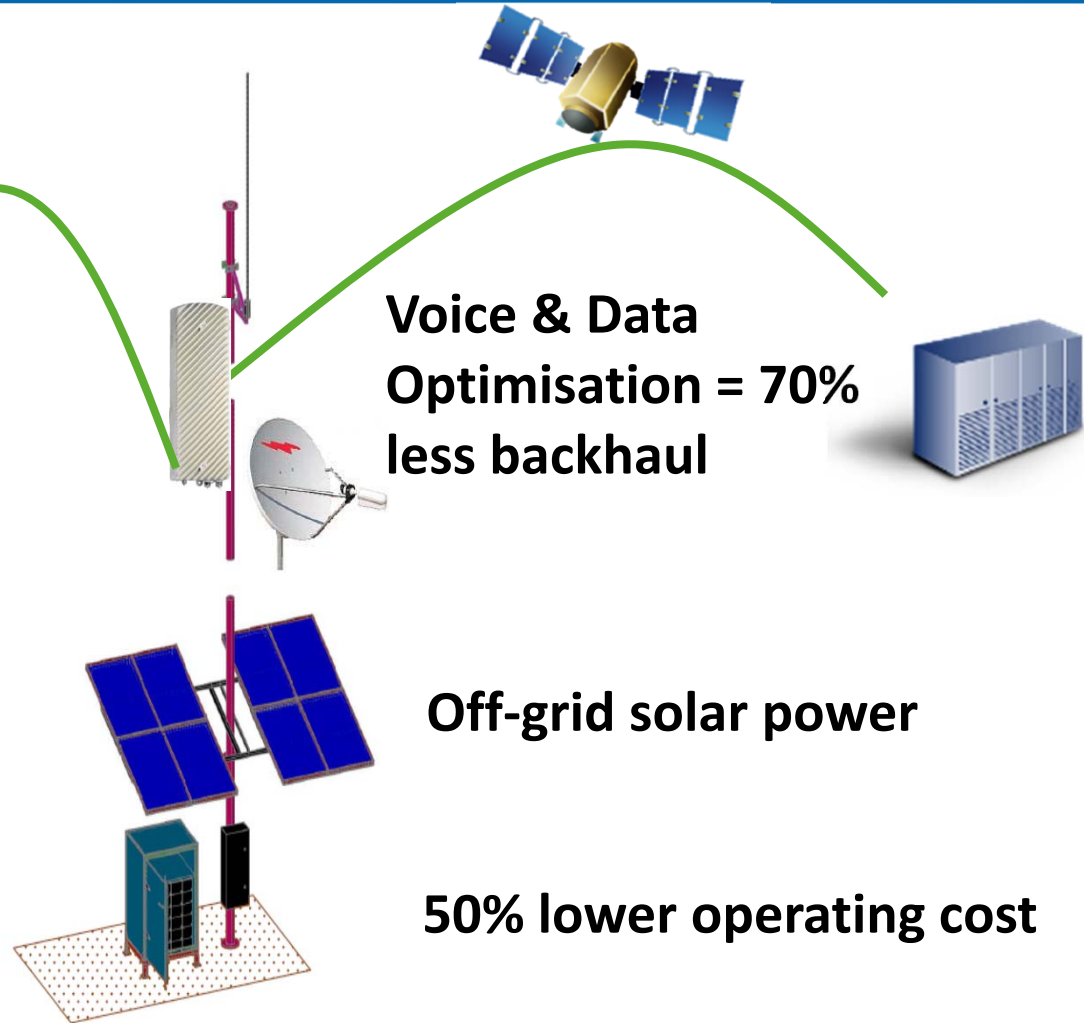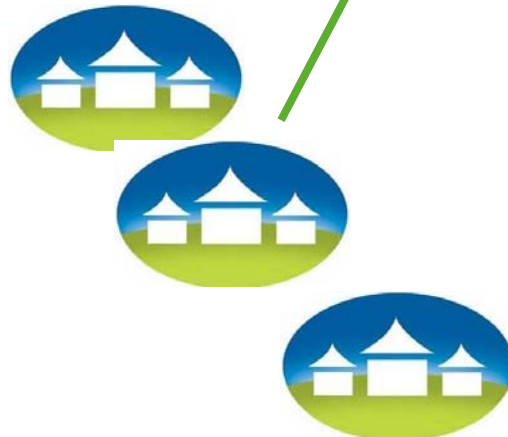
Existing Core Network

The Altobridge lite-site™

Designed for 500-2,500 size subscriber communities

Local Calls Switched Locally = lower cost & superior voice quality
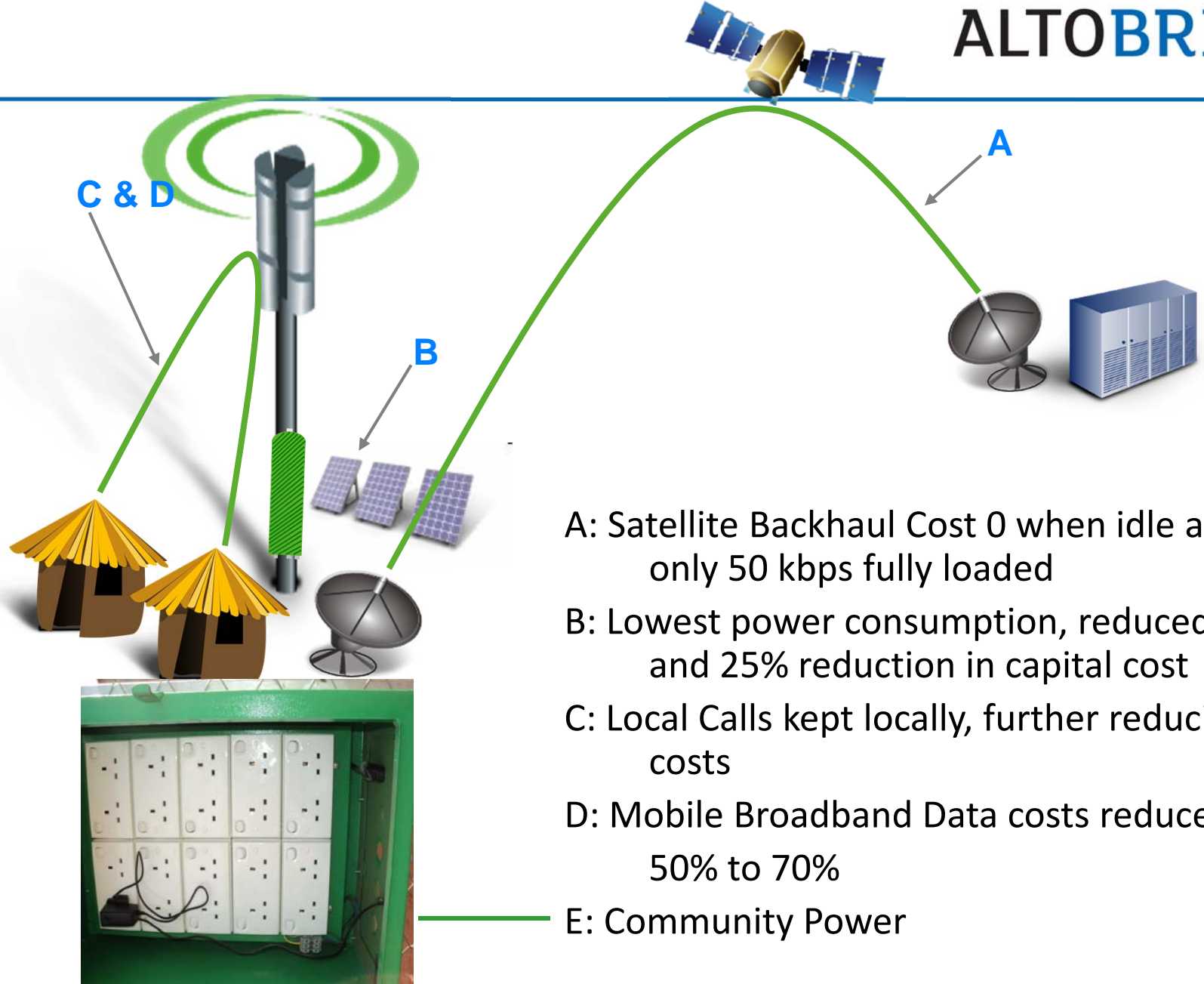
Voice & Data Optimisation = 70% less backhaul

Off-grid solar power

50% lower operating cost

Lite-Site with Community Power

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A

C & D

B

E: Community Power
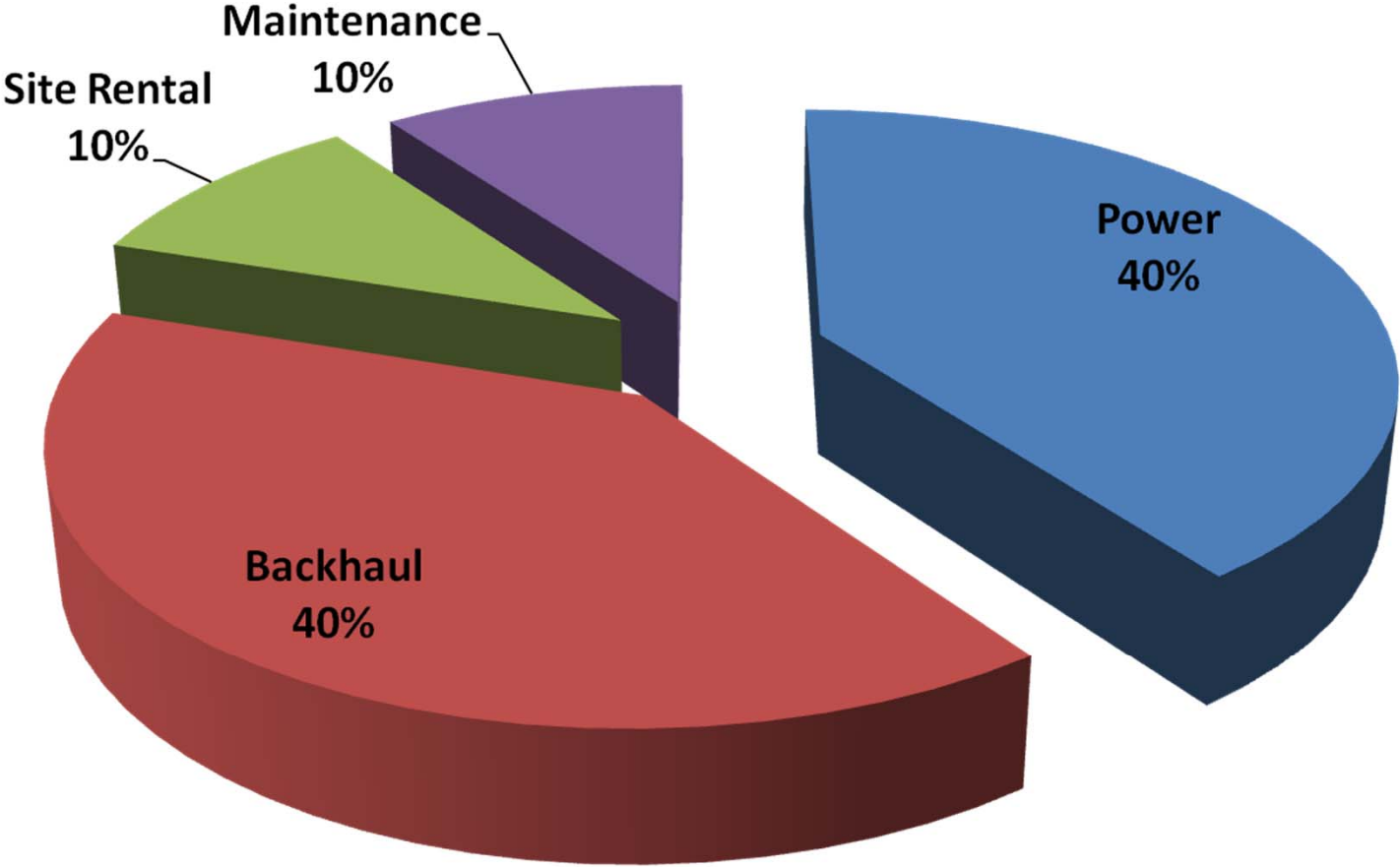
A: Satellite Backhaul Cost 0 when idle and requires only 50 kbps fully loaded

B: Lowest power consumption, reduced at off-peek and 25% reduction in capital cost

C: Local Calls kept locally, further reducing Backhaul costs

D: Mobile Broadband Data costs reduced by 50% to 70%

E: Community Power

OPEX barriers for operators in Remote Communities

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Altobridge lite-site™
Key Features

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Power

Lowest power consumption
- 90 Watt average for 2 TRX

Intelligent power management
- Intelligent Power Amplifier management
- Puts VSAT into low-power mode in low -traffic periods (= zero idle traffic)
- Traffic handling to minimize 2nd TRX usage

Physical
- BTS located in proximity to antenna to minimise feeder loss
- Passively Cooled, Outdoor BTS

Transmission

Lowest industry bandwidth usage
- 50 kbps for a single 2 TRX site

Split Architecture
- Optimises the satellite link

Local Switching™
- Reduces bandwidth requirements by switching local calls locally

Data-at-the-Edge™
- Data optimisation at BTS-level dramatically reduces 3G data backhaul

Operations & Maintenance

- Integrated O&M functionality with web access and SNMP interface

The altoPod™

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	2G	3G
Frequency	GSM 850/900/1800/1900	UMTS 2100 MHz (850/900 MHz future)
Capacity	2 TRX (EFR/AMR-HR)	16 sessions (voice/data)
RF output	10W	5W
Range	Up to 10 km	Up to 2 km
Data throughput	GPRS/EDGE	HSPA (14 Mbps downlink, 5.8 Mbps uplink)
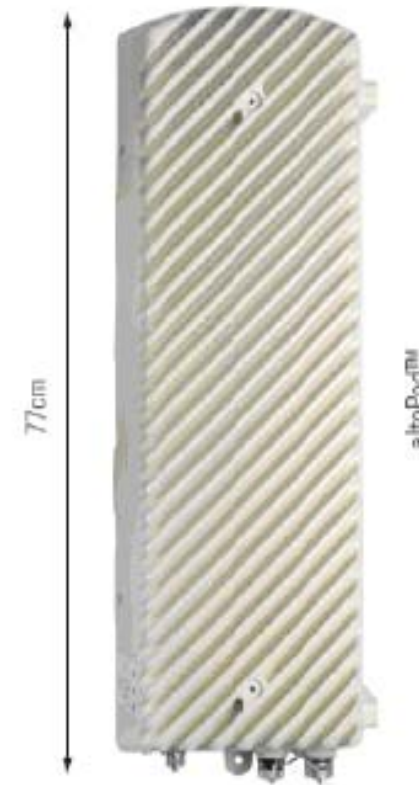
2G altoPod™

Breaking the 100W barrier…

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2G altoPod	3G altoPod	altoZone
90W power consumption	70W power consumption	22W power (suitable for PoE)
10km coverage radius	2km coverage radius	400m coverage radius
24 simulataneous voice calls	24 simulataneous voice calls	24 simulataneous voice calls
Locally switched voice calls	Locally switched voice calls	Locally switched voice calls
EDGE Data service (200Kbps)	HSPA data (14Mbps)	HSPA data (14Mbps)
	160W average combo site with 2G altoPod	112W average combo site with 2G altoPod

Altobridge Competitive Advantage

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Feature Description	Altobridge lite-site™	Competing Solution
Optimized backhaul over VSAT	Only 4kpbs per active call	Typically 14kbps per call
Zero traffic on backhaul when no active call	Zero idle traffic on VSAT when no voice calls	Not supported (requires Split Architecture™)
Low power consumption	90W average	Above 130W
Local Connectivity™	Supported	Not supported by most competitors
Mobile Data Optimisation (Data-at-the-Edge™)	Supported	Not supported
GPRS, EDGE, 3G, AMR, Handover, Legal Intercept	All Supported	Not All Supported

Tigo Ghana
Altobridge lite-site™ Deployments

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Site	Active Subs	Population	Penetration %
Botoku	688	3,000	23%
KutuKrom	1,189	2,592	46%
Kordjor	1,555	4,000	39%
Baano No 2	1,165	6,270	19%
Adiokor	2,518	5,937	42%
Aboaboso	916	4,000	23%
Sewam	1,974	2,688	73%
Dwerebiase	605	4,000	15%
Amankwaa Krom	1,396	5,000	28%
Tugu	519	1,000	52%

October 2012

USF Deployment, West Africa Commercial KPI Summary

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	August 2012	September 2012	2-Month Average
Average Revenue per Site	USD $ 3,968	USD $ 4,623	USD $ 4,296
Average Active Subs per Site	1,312	1,401	1,357
Average Minutes of Use (MoU) per Sub	90	93	92
Average Mobile Originating Revenue per User	USD $ 2.79	USD $ 3.10	USD $ 2.95

Revenue is calculated on Mobile Originating Voice + Mobile Originating SMS traffic only. Mobile Terminating Traffic and Data Traffic excluded.

Minutes of Use is based on MO + MT Minutes

An Active subscriber is defined as having made a revenue generating call during the period
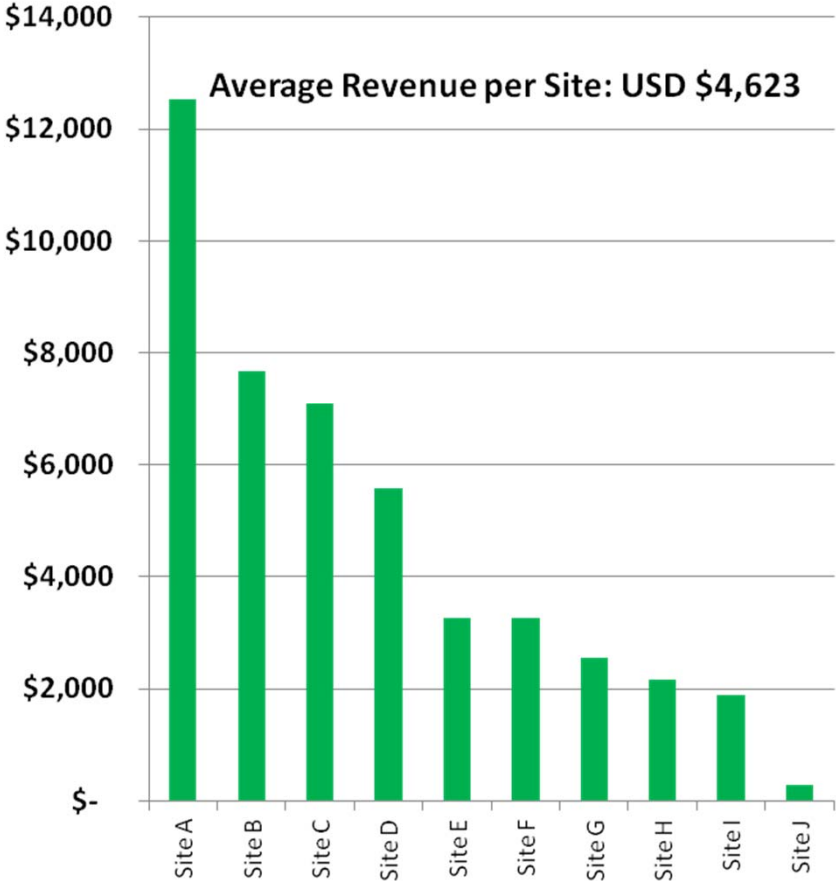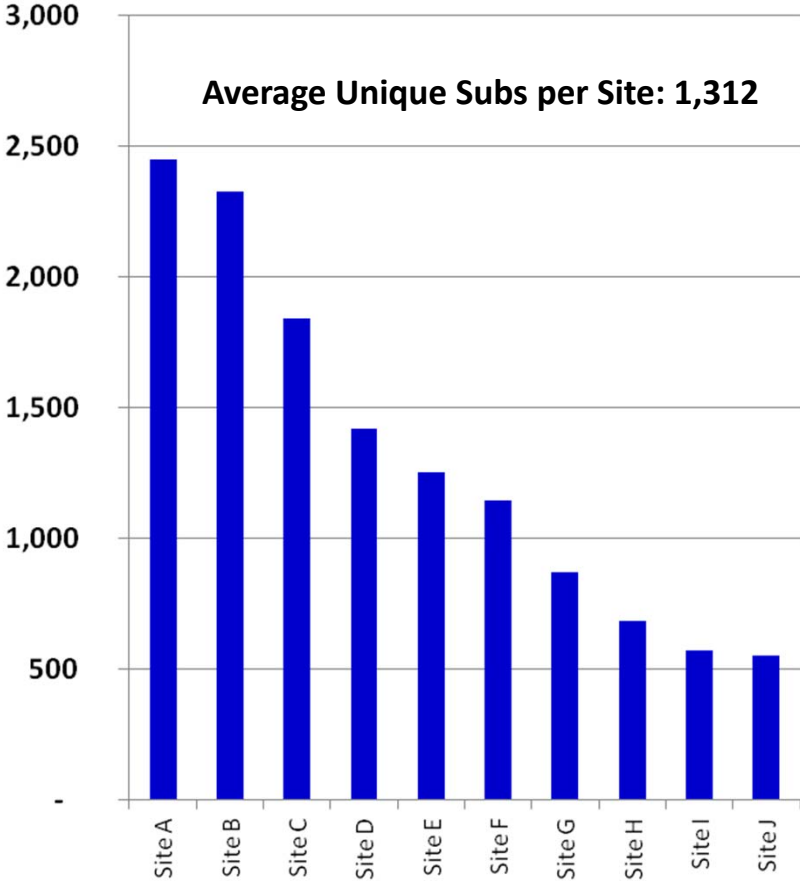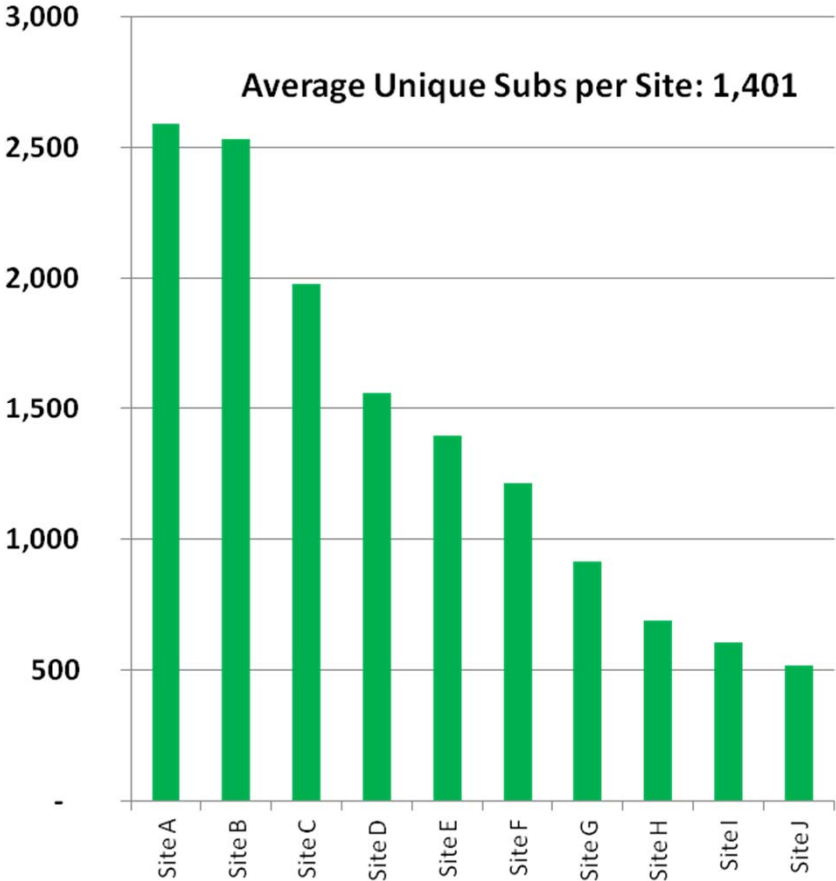
USF Deployment, West Africa Revenue per Site

ALTOBRIDGE™

August 2012

Average Revenue per Site: USD $3,968

September 2012

Average Revenue per Site: USD $4,623

Revenue is calculated on Mobile Originating Voice + Mobile Originating SMS traffic only. Mobile Terminating Traffic and Data Traffic excluded.

USF Deployment, West Africa
Unique Active Subs per Site

ALTOBRIDGE™

August 2012

Average Unique Subs per Site: 1,312

September 2012

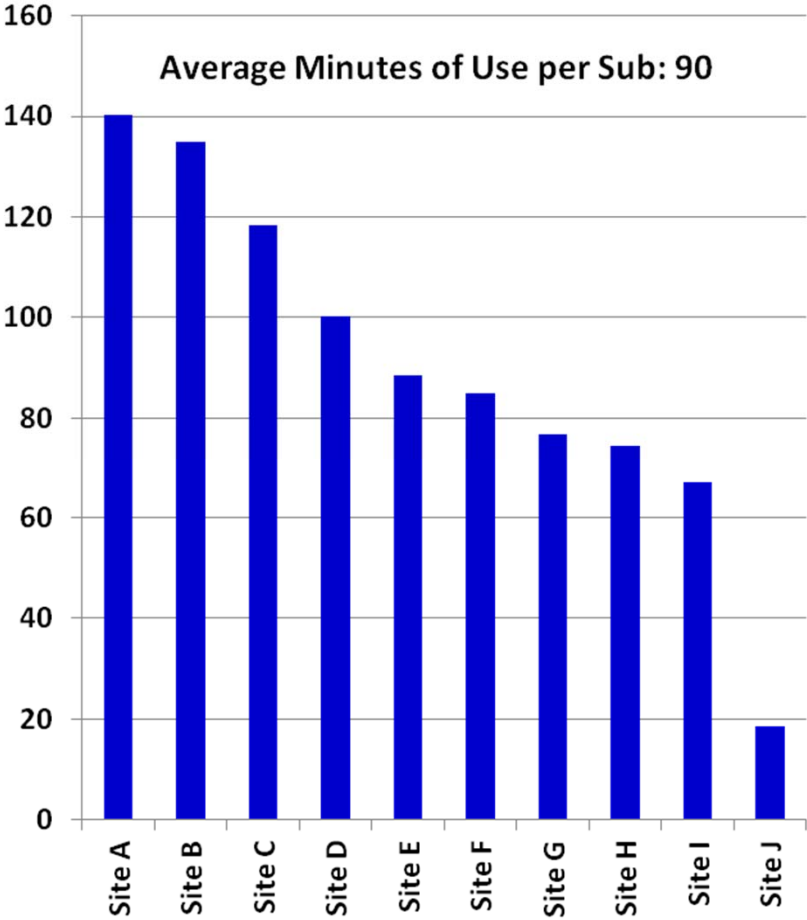Average Unique Subs per Site: 1,401

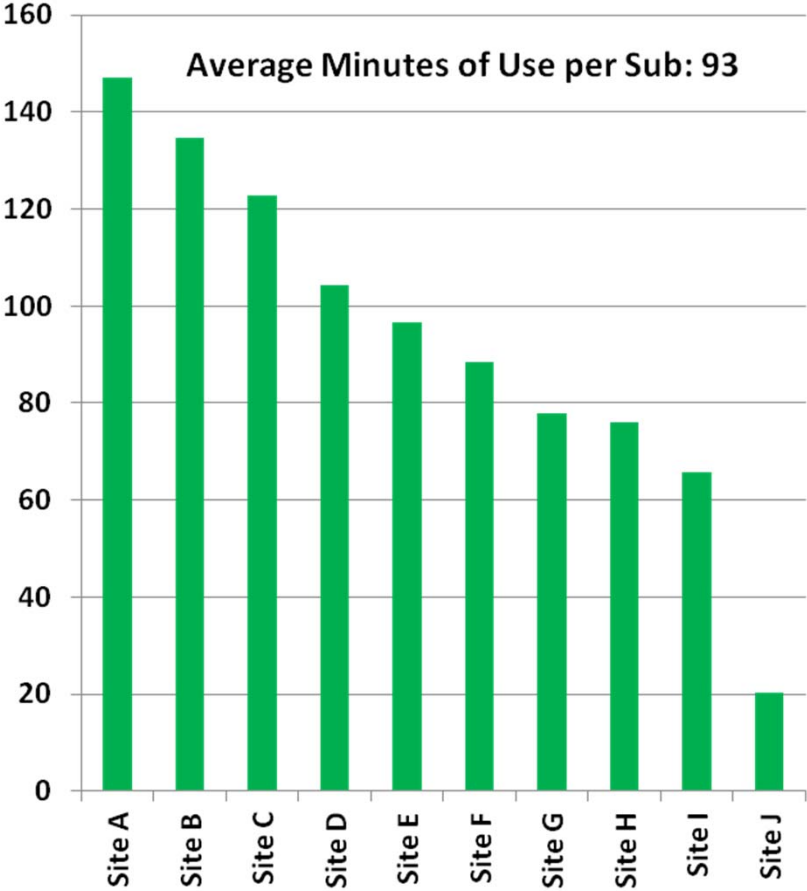A Unique active subscriber is defined as having made a revenue generating call during the period

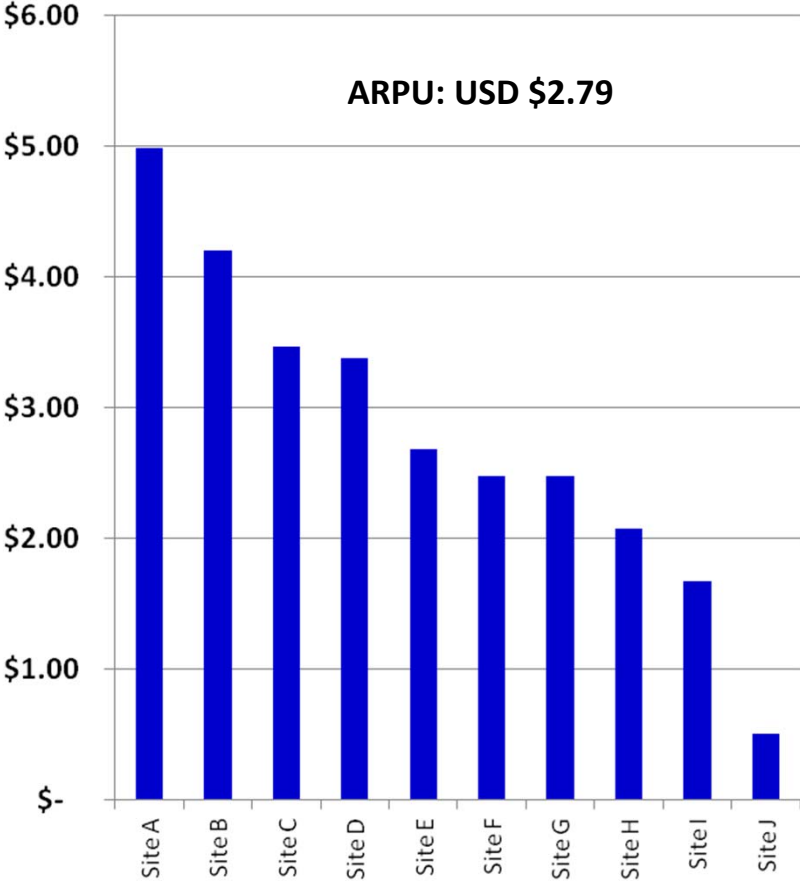# USF Deployment, West Africa Minutes of Use (MoU) per Sub

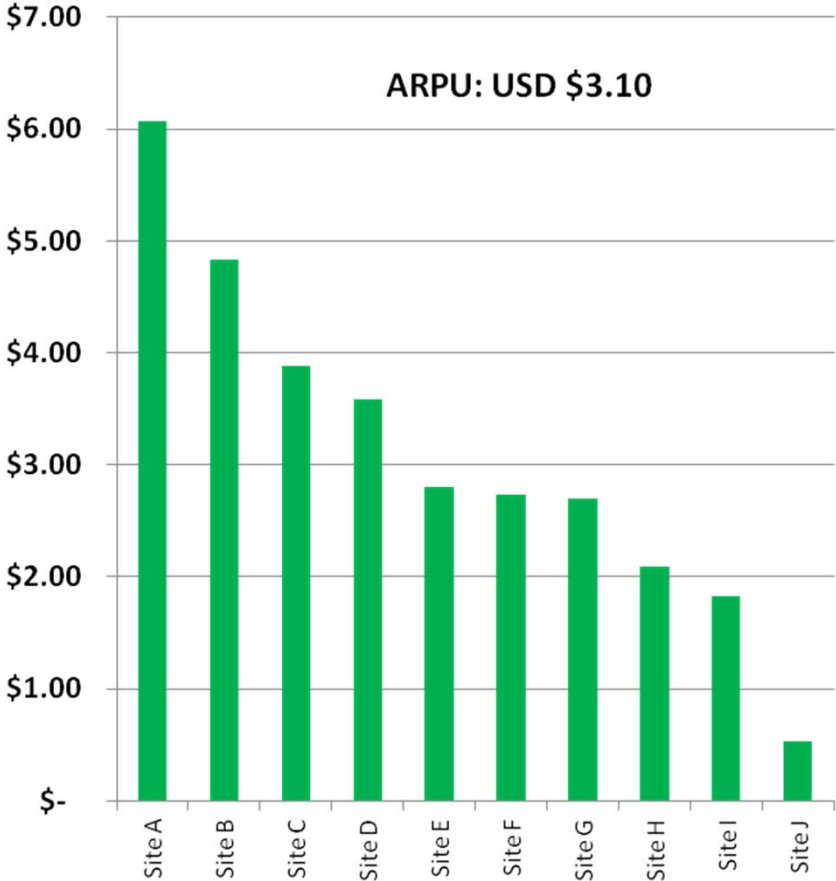**ALTOBRIDGE™**

Minutes of Use is based on MO + MT Minutes

USF Deployment, West Africa
Mobile Originating Revenue per Site

ALTOBRIDGE™
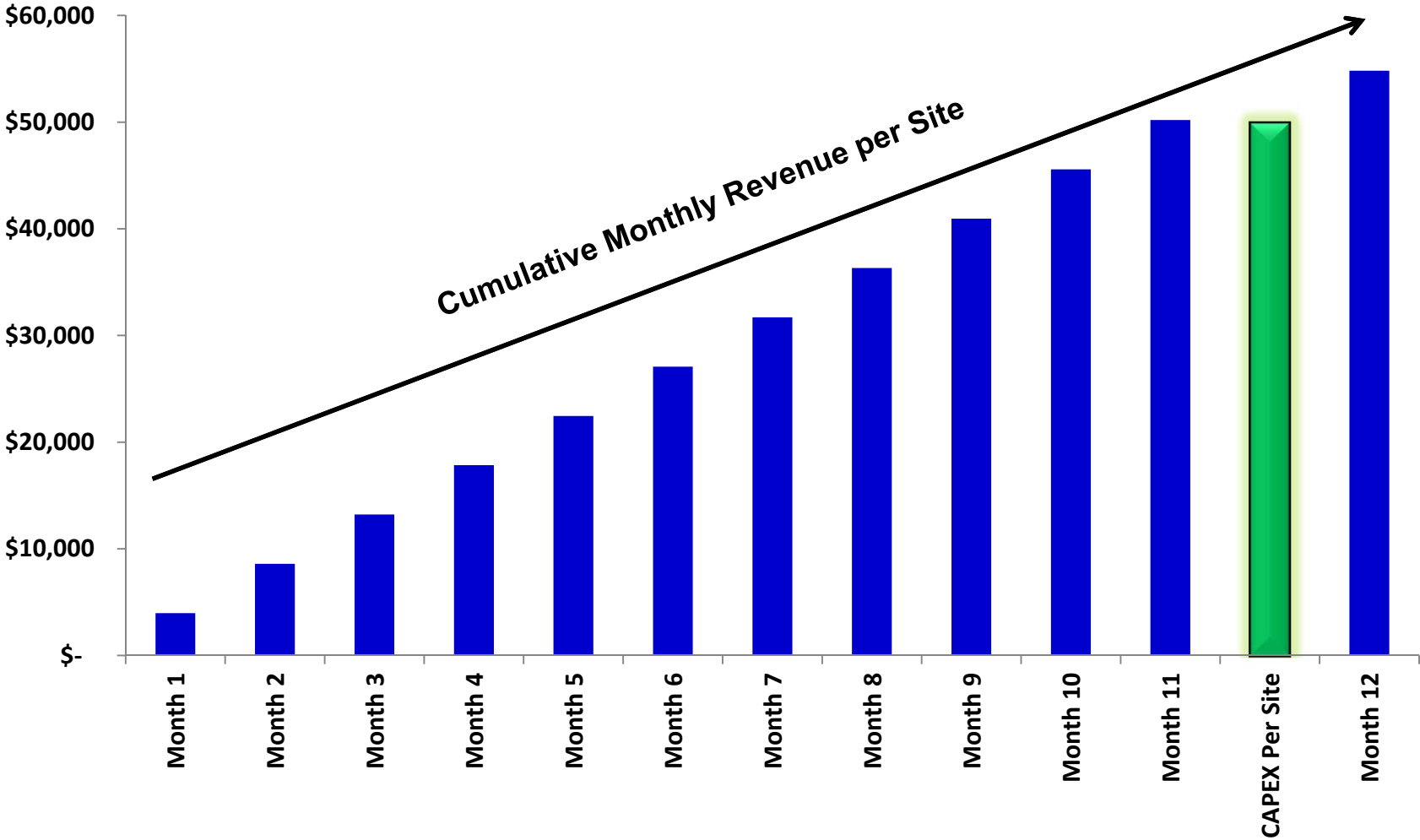
August 2012

ARPU: USD $2.79

September 2012

ARPU: USD $3.10

ARPU is calculated on Mobile Originating Voice + Mobile Originating SMS traffic only. Mobile Terminating Traffic and Data Traffic excluded.

USF Deployment, West Africa
ROI in Under than 12 Months

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Cumulative Monthly Revenue per Site

$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$-

Month 1
Month 2
Month 3
Month 4
Month 5
Month 6
Month 7
Month 8
Month 9
Month 10
Month 11
CAPEX Per Site
Month 12

Thank you

For further information, please contact:

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www.altobridge.com