



EtherHaul™ -1200 Product Presentation

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Siklu

State-of-the-art 71-76 GHz E-band Radio provider

- **Leading provider of High-capacity Gigabit Ethernet Radio**
- **Improve Service Availability and Quality of Experience**
- **Increase Customer Satisfaction, Customer Loyalty**
- **Excellent Support**
- **Competitive quotation and Short ROI**
- **Reduce CapEx and OpEx**

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Increase Your Revenue

Siklu in a nut-shell



- **Ground Breaking last mile Backhaul and Fiber Extension solutions**

- ▢ Unique millimeter wave solution reduces TCO by more than 80%
- ▢ Technology covers small cell solution - micro/pico cells for LTE/4G

- **Strong Execution and Capital Efficiency**

- ▢ Strong Backup - DFJ-TFV, Evergreen, Argonaut, Qualcomm
- ▢ Exceptional Execution
 - <3 Years from inception to revenues
 - Strong IP, High Entry Barriers (RFIC, Antenna, BaseBand ASIC)
 - 50 people

- **Starting Strong and expanding**

- ▢ Bookings around 1000 links
- ▢ Installations, trials & tenders across Europe
- ▢ First trials in India and US



EtherHaul-1200 Changing the Backhaul Game

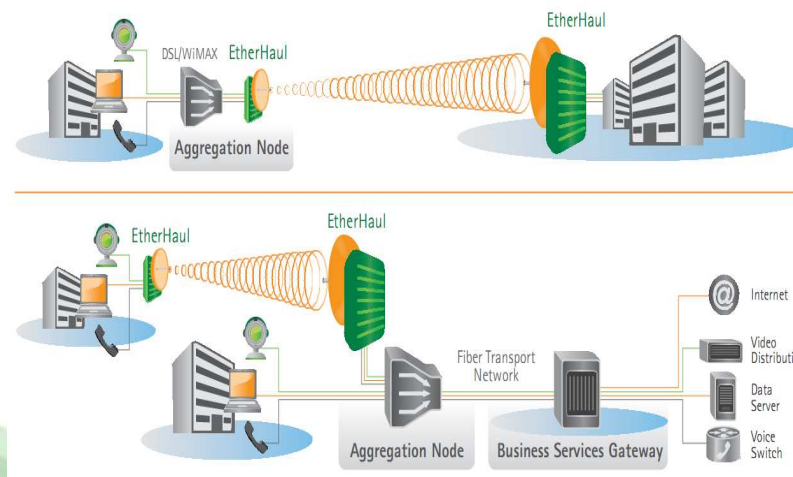
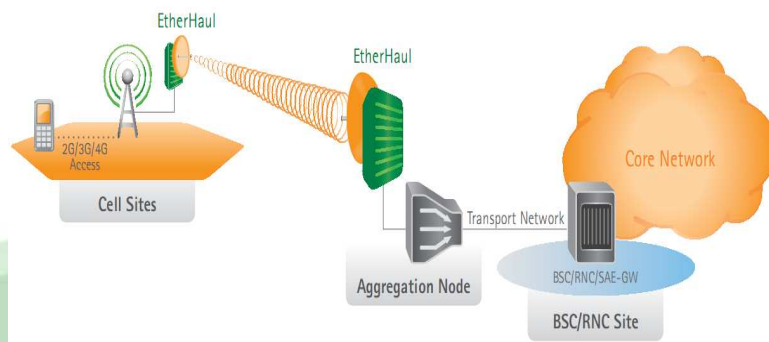


- **EtherHaul-1200** is a wireless backhaul solution at the industry's lowest total cost of ownership (TCO)
- Leveraging the advantages of the 71-76 GHz (E-band) spectrum **EtherHaul-1200** delivers reliable, carrier-grade bandwidth optimized for the mobile backhaul network edge (first / last mile)
- **EtherHaul-1200** combines state of the art RF design with rich networking features while being flexible, scalable, and easy to install
- **EtherHaul-1200** future-proofs the backhaul network - enabling the transition to Ethernet, providing the high capacity required by HSPA, LTE and WiMAX and supporting future network topologies such as flat-IP, mesh and ring architectures

Wireless Backhaul for 2G, 3G, LTE, WiMAX Networks, Business and Enterprise

- High-capacity Gigabit Ethernet backhaul at the lowest TCO in the industry enables mobile operators to profitably and reliably provide data intensive services.

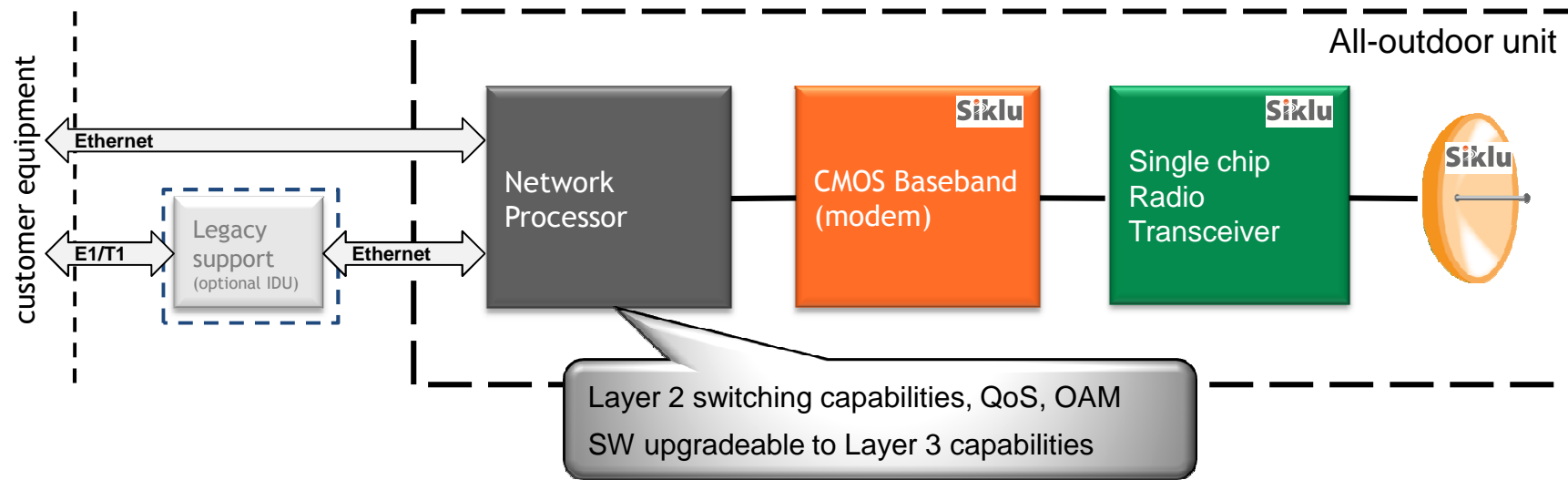
- A low cost, high capacity Ethernet wireless solution allows you to rapidly extend your fiber reach beyond existing fiber footprint or expand your enterprise network.



“Siklu inside” - reliable and scalable



Siklu’s EtherHaul™ System Overview



- **Scalable and flexible to support multiple network architectures:**

- ▢ Point-to-point, protected p2p, mesh, daisy-chain, ring

- **Highly reliable design**

- ▢ Low number of components, low heat dissipation
- ▢ No RF cables/connectors, no tuning/calibration!

- **Low cost, high volume simple (“digital”) production**

- ▢ Flextronics - global manufacturing facility



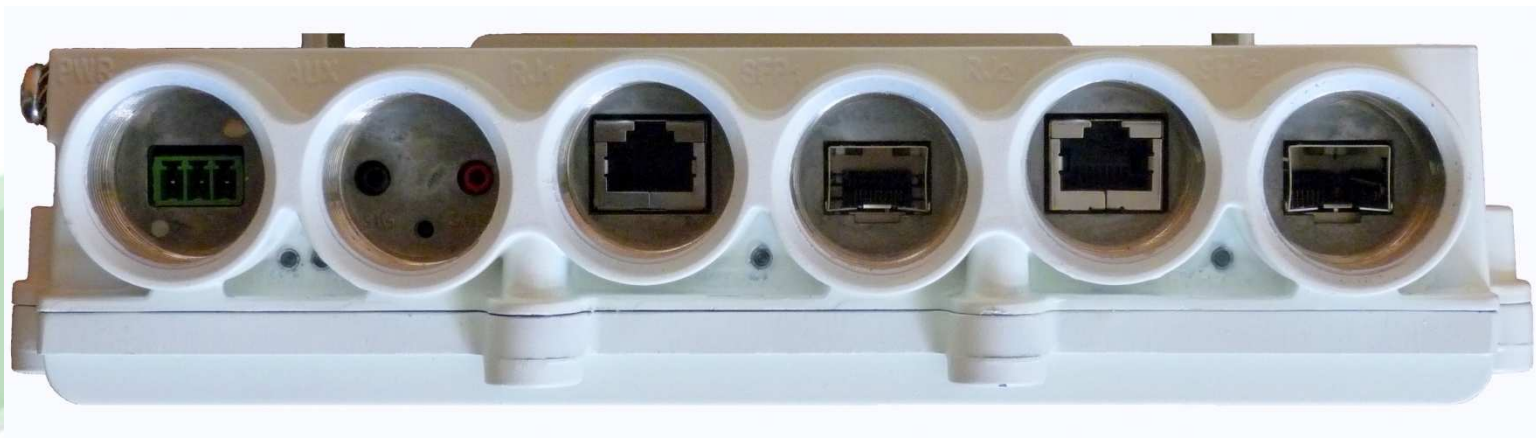
EtherHaul-1200



Data Interfaces

- Supported Ethernet Interfaces:
 - ▢ 2 x 100/1000Base-T (RJ45)
 - ▢ 2 x 1000Base-X (SFP)
 - Supported SFP Types: 1000Base-LX (1310 nm), SX (850 nm)

- Any combination of 2 Ethernet interfaces may be used at a given time



Antenna

- Self-designed, innovative antenna designed for best price-performance ratio for 26cm (10.3”) and 31cm (12.2”) diameters

- Type: Integrated, Cassegrain reflector

- Polarization: Vertical or Horizontal

- Performance:

Diameter	26 cm. (10.3”)	31 (12.2”)	65 (25.6”)
Gain	42dB	45dB	50dB
Beam Width	1.1°	0.8°	0.5°
Pattern	ETSI	ETSI/FCC	ETSI/FCC

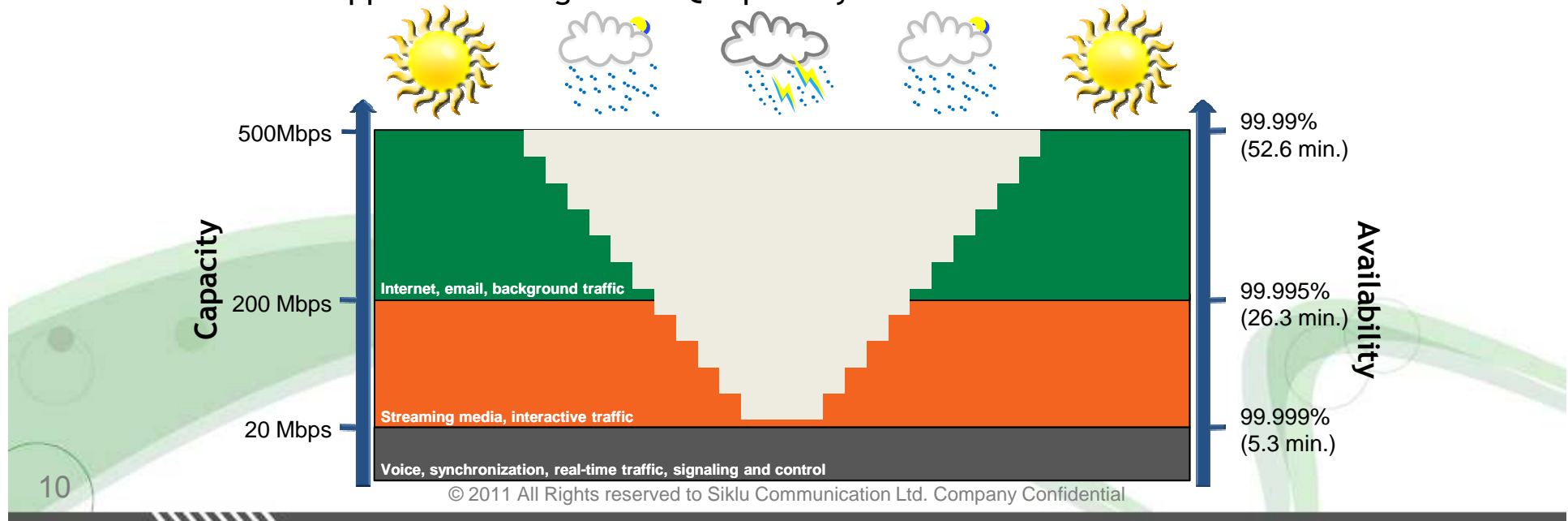
- EtherHaul “center-pole” mounting significantly lowers the wind factor

- Pole stability and vibration requirements for installation may be eased allowing low profile installations



Adaptive Bandwidth, Coding & Modulation (ABCM)

- EtherHaul implements hitless/errorless adaptive bandwidth, coding and modulation adjustment to optimize the over-the-air transmission and prevent weather-related fading from causing traffic on the link to be disrupted
- EtherHaul can gain up to 21 dB in link budget by dynamically adapting:
 - ▢ Modulation - 64QAM, 16QAM to QPSK
 - ▢ Channel bandwidth - 500 MHz to 125 MHz, 250 MHz to 62.5 MHz
 - ▢ Repetitions: 1, 2, 4
- Traffic is dropped according to the QoS priority



Compact, Easy to Install, All Outdoor

- **All outdoor, easy to install solution**
 - ▢ Reduces the space needed indoors (Reduce OpEx)
 - ▢ An ideal backhaul solution for all-outdoor base stations
 - ▢ Small foot print, <3Kg weight, < 1ft. antenna
 - ▢ Fast deployment
- **Very low power consumption**
 - ▢ Reduced energy costs, 20W
 - ▢ One cable installation (PoE)
- **Range**
 - ▢ 2 - 3Km in most of the world (4.5 9's)



Siklu's For you...



- **Last mile optimization**
 - ▢ Size, weight, ease of installation, power consumption
- **Cost dramatically reduced**
 - ▢ More than 75% price reduction!
 - ▢ Fits on simple poles, shorter installation time
 - ▢ Smaller electricity bill, one cable feed (PoE)
- **Higher spectral efficiency**
 - ▢ More available channels (frequency planning)
 - ▢ Uses E-band 71-76 GHz wireless spectrum
 - ▢ Further reduced spectrum costs
- **More advantages**
 - ▢ Wide dynamic range for hitless adaptive rate
 - ▢ Fewer components and low heat dissipation



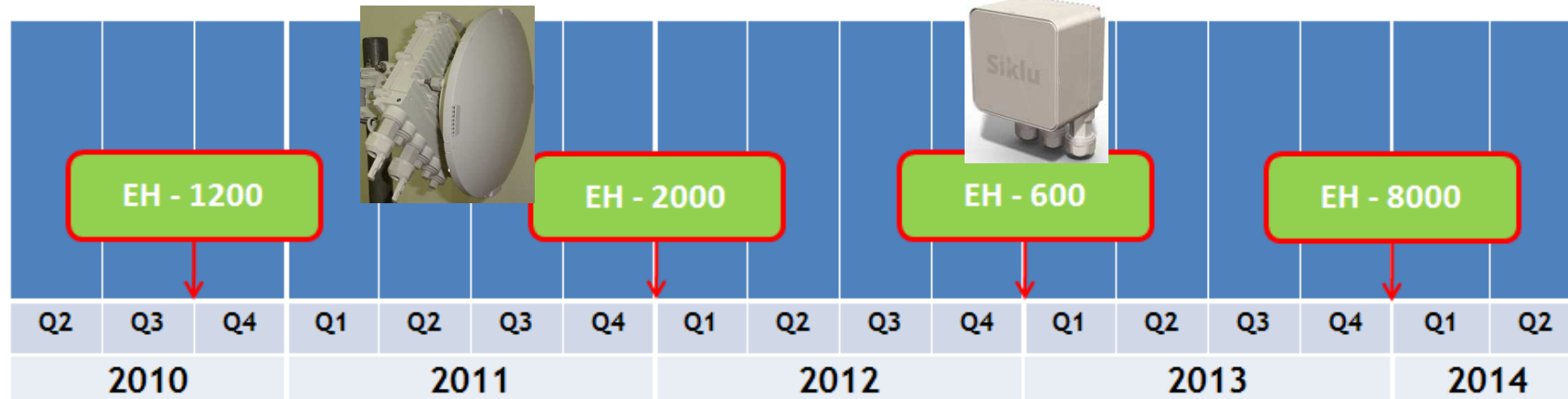
Siklu's For you...



- Carrier-class, standard-based Ethernet capabilities
- 1 Gbit throughput future-proofs backhaul network
- Asymmetrically downstream-upstream ratio
- Fast and efficient frequency / network deployment
- QoS mechanism differentiates between services
- Fully functional integrated Bridge (IEEE 802.1ad)
- Advanced timing over packet handling (SyncE, 1588)
- Simpler and quicker licensing registration processes
- High MTBF (73 years)



EtherHaul Roadmap - Full Range of products



		Confirmed			Future
		EH-1200	EH-2000	EH-600 ¹	EH-8000
Frequency (GHz)		71-76	71-76, 81-86	57-64	71-76, 81-86
Duplexing		TDD	FDD	TDD	FDD
Channel Bandwidth (MHz)		500	2x500	500	2x1250
Throughput (Mbps)	Full Duplex	500	1000	500	4000
	Asymmetric ²	900	-	900	-
Antenna Size (inches)		12, 24	12, 24	4, 6	12, 24
Range (meters, 4.5x9's)		2,500	2,500	300	3,000

1 EH-600 will also have a Base Station Integrated version

2 Asymmetric mode, up to 90%-10%



EtherHaul-2000



- **All outdoor, easy to install solution**
 - ▢ Enjoy all benefits of EtherHaul - 1200
 - ▢ Operating frequency is 71-76/81-86 GHz
 - ▢ 1 Gbit throughput
 - ▢ FDD - Full Duplex
 - ▢ 31 cm Antenna



Making Picocells a Reality !

- Miniature solution for pico cells
 - ▢ All Outdoor solution
 - ▢ Steerable Antenna (electronic)
 - ▢ Easily integrates to pico BTS
- Performance not compromised
 - ▢ 1Gbps, can aggregate few picocells
 - ▢ Networking - PtP, ring, mesh (incl. resiliency)
- Power and spectrum efficient
 - ▢ <15W
 - ▢ 9 Channels



Siklu For you ...

- **Leading provider of High-capacity Gigabit Ethernet Radio for IP, Mobile and Legacy**
- **Excellent Product, Project Management and Support**
- **Improve Service Availability and Quality of Experience**
- **Increase Customer Satisfaction, Customer Loyalty**
- **Competitive quotation and Short ROI**
- **Reduce CapEx and OpEx**

A decorative graphic at the bottom of the slide consisting of a thick, wavy green line that curves across the width of the slide. There are several faint, overlapping circles of varying shades of green and white scattered across the background behind the wave.

Increase Your Revenue

*With Siklu
you get more bytes
for your money*

Reduce

CapEx, OpEx

and

increase your revenue

A decorative graphic at the bottom of the slide features a thick, light green wave-like shape that spans across the width. It is accented with several semi-transparent circles of varying sizes. Below the wave, there is a thin black horizontal bar with a white diagonal hatched pattern on the left side.

We Promise You a Rose Garden



I like the

dreams of the future
better than the

history of the past

Thomas Jefferson

THANK YOU!



Itzik Fogel

For more information about our products and services

www.siklu.com