
Amperion and USAID: Opportunities to Provide Broadband Access to Underserved Countries

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Key Challenge - Broadband Access

- **Challenge: To greatly improve the limited broadband access in many areas of the world**
- **Improvements in this area favorably impacts so many others**
 - **Driver for economic growth**
 - **Education for children**
 - **Provides access to voice without telecom infrastructure**
 - **Increase access to health-related information**
 - **Transform social activities**
- **Case Study: Africa***
 - **Only 2.6% of overall population has access to broadband**
 - **51 of 57 countries have <10% broadband access**
 - **Nearly 900 million people have no access**
- **Asia and Middle East also have <10% overall access**

* Source: Internet World Stats; data as of 3/31/06

Progress Being Made, But Too Slowly

- Usage growth has increased by 183% from 2000 to 2005
- Organizations such as USAID have stepped up with programs to encourage advancements
- New broadband technologies being introduced but few actually impact underserved areas
- Most require significant capital investment for deployments
- These areas don't have much in terms of telecom infrastructure
- The result is an ever-widening digital divide on a global basis



Entrepreneur-led Internet Cafe in the Ziguinchor region of Senegal; photo shamelessly stolen from USAID ICT site

How Amperion Can Help

- **Amperion's goal is to work together with organizations such as USAID to overcome these challenges**
 - **Our focus is on emerging, underserved markets**
 - **By partnering, we can help to bridge the global digital divide**
- **Proven, unique technology**
 - **Unique solution that differentiates Amperion and provides significant advantages**
 - **Hybrid technology: Broadband over Powerlines (BPL) + WiFi**
 - **Leverages nearly ubiquitous electricity infrastructure: lower costs, less time to deploy broadband solution in emerging economies**
- **Broadband for Digital Divide**
 - **Enables delivery of mobile voice and data in markets with no alternatives (internet to schools, phones in villages and cities, etc)**
 - **Enables delivery of solutions even when competing head-to-head w/cable, DSL, satellite + WiMax due to infrastructure, mobility, deployment & cost advantages**

How Amperion Can Help

- **Our unique hybrid solution creates a compelling economic case for the kind of population densities in the international market**
- **Amperion is capable of providing an entire end to end solution with our experience and key partnerships**
 - **This would likely also include new partnerships that USAID could introduce us to in order to assist with local activities**
 - **Our business approach is flexible so we can assume various integrator responsibilities as necessary**
- **Amperion's special value add is in our experience to roll out these networks across entire cities**
 - **We are equipped to handle the complexities of rolling out networks for large numbers of people to reach scale as efficiently as possible**

The Amperion Basics



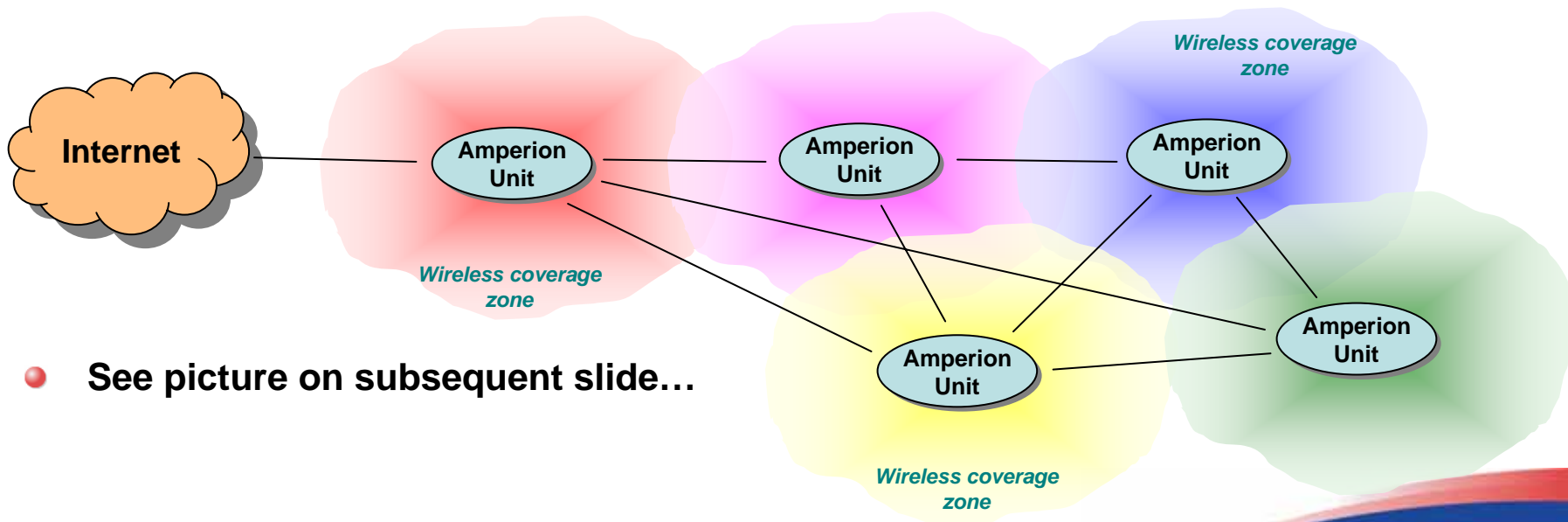
Amperion at a Glance

- **Amperion is a Global Broadband and Voice Solution Provider Company**
- **Leader in BPL and Wireless Hybrid Networks**
- **Amperion is the owner of the base patents that are the foundation of the BPL industry**
- **Over 5 years of BPL field experience on all Five Continents**
- **Amperion currently offers:**
 - **Integrated BPL and Wireless Equipment**
 - **Integration Services**
 - **Voice and Data Services**
 - **Network Management**
- **Our Customers**
 - **Utilities**
 - **Broadband Data and Voice Service Providers**
 - **Global Communities**



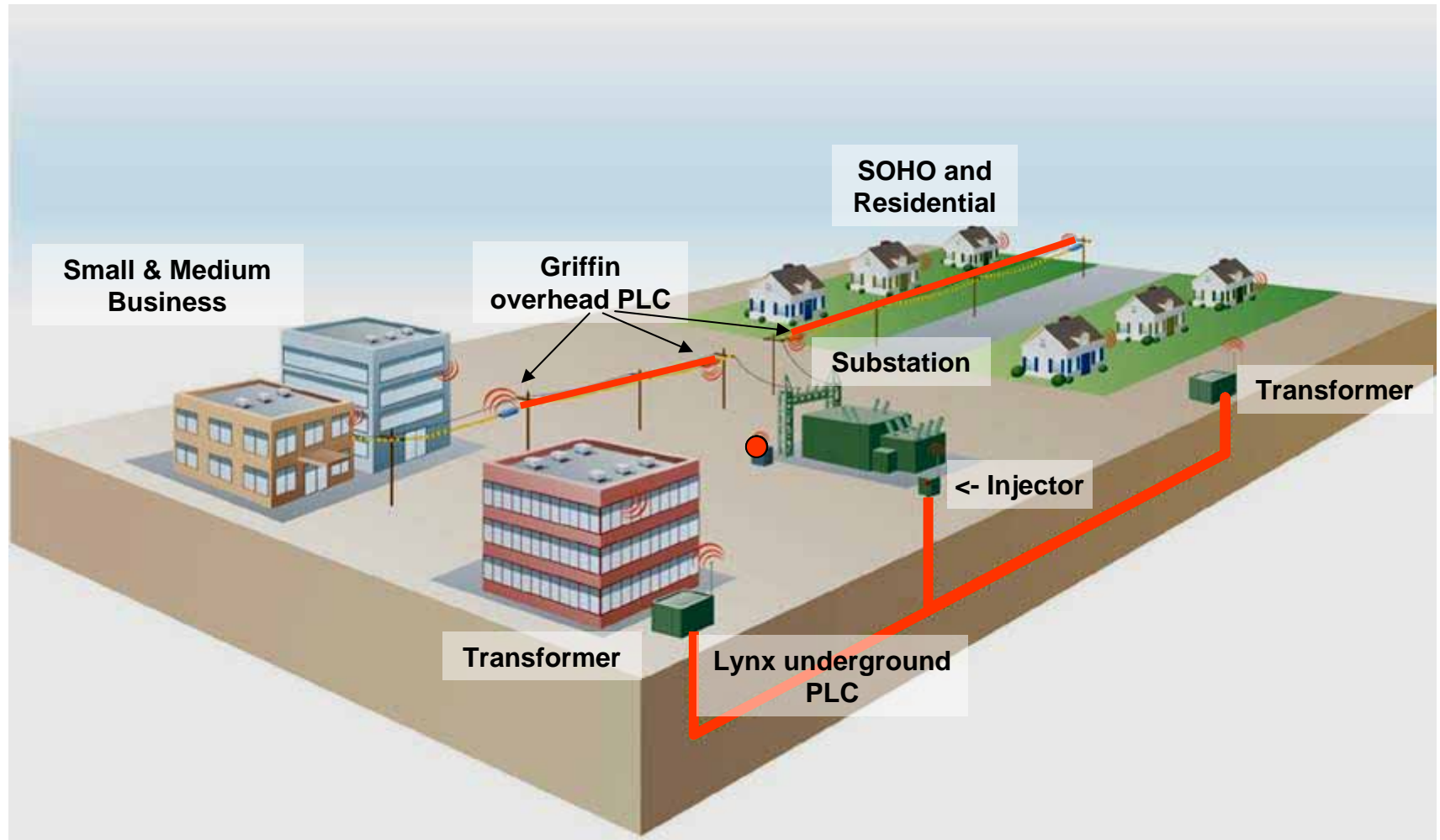
The Amperion Connect Solution

- Amperion connects to the internet via any T1, T3, Fiber or Microwave link
- Amperion units are attached to electrical grid, sending signals down wire
- Every unit has WiFi access-point, built-in – so entire deployment (whole city) becomes a WiFi hotspot
- Units can talk to one-another wirelessly, providing wireless mesh network in addition to powerline backbone – very reliable and redundant
- Data rates are 10-20 Megabits per second for every circuit - customers receive up to 4 Mbps wireless service (support 802.11 a, b & g)



- See picture on subsequent slide...

How does Amperion Connect Work?



Deployment Example (Typical)

The *Electric Grid* is more than a single pathway...

...it is a linear branch and tree network...

...which with PowerWiFi also becomes a complex 3D grid that can interconnect in hundreds of ways...

...using both BPL-wired pathways, and wireless-mesh pathways to balance net
Wireless "

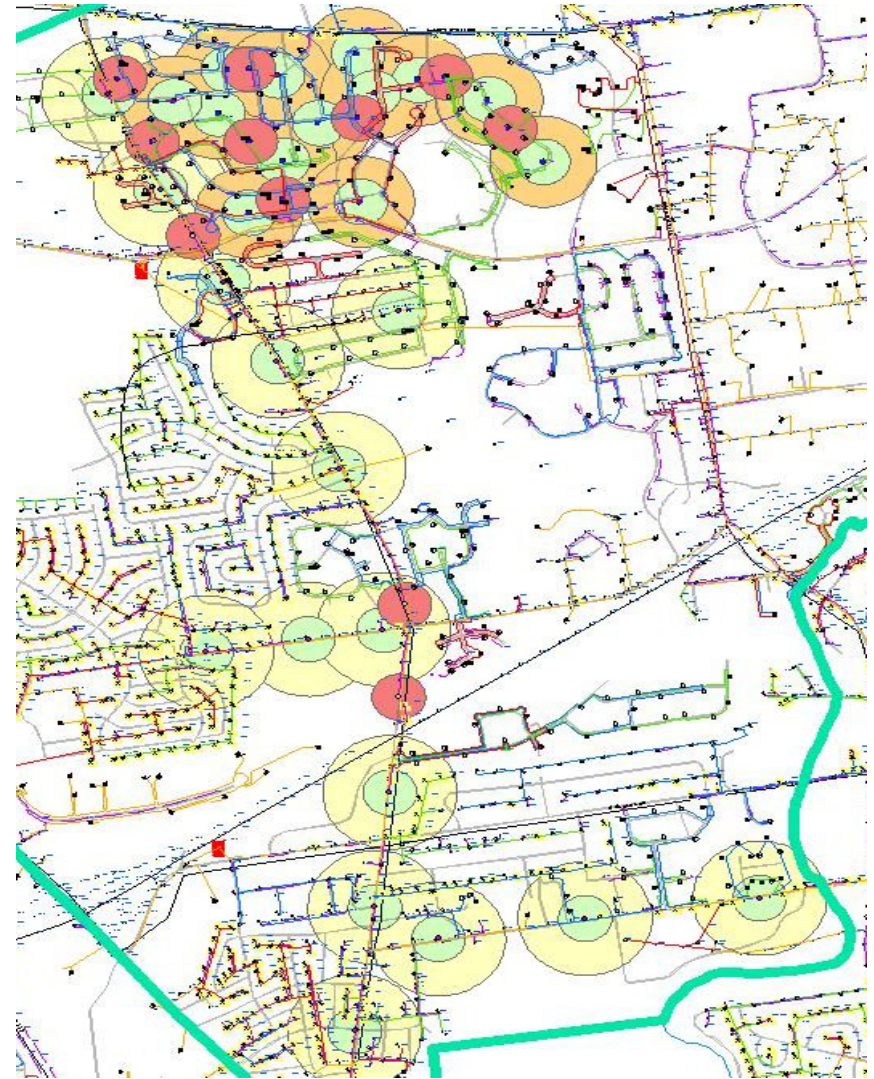
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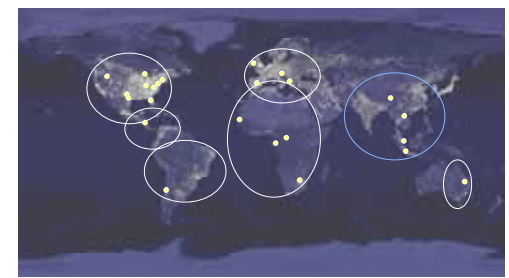
Here is an Aerial view of an Amperion deployment at Lehigh University, Pennsylvania USA

from unit to unit

Sample Business Case

- 100+ Extraction Points
- 6,000+ Homes Passed
 - 50-68 HH passed per extraction point
 - 800 Transformers Passed
 - 13+ Transformers passed per extraction
- 3-4 Mbps per end user
- \$53 per home passed
 - Ranges from \$26 to \$150 per HH passed depending upon density, topology, etc.





Market Activities

● Indonesia

- Wants to offer 2 million new phone lines per year for next 6 years
- Deployment of Amperion equipment has already begun

● Vietnam

- Amperion deployment to begin next week to offer broadband services

● Senegal

- Very limited trial deployment in Dakar region
- Larger rollout due to start later this summer, with a lot of activity taking place by year-end
- The President has stated publicly that he will deploy Amperion equipment throughout his capital of Dakar to provide high speed BB and voice service

● Other countries

- Amperion has worldwide experience deploying its equipment
- Inquiries received from parties in various countries every day expressing an interest in Amperion deployments

Opportunities to Partner Together

- **Our organizations have similar goals and missions with strengths and experience that complement each other**
- **Working together will accelerate our mutual ability to achieve these goals more quickly and efficiently**
- **Some initial activity has already begun**
 - **Potential projects in which we can work together have been identified in Latin America**
 - **USAID has facilitated introductions to a key project partner**
- **Amperion would like to expand upon this partnership activity**
 - **Mutually agree upon prioritized areas in the world that would benefit most from this technology**
 - **Get more involved in appropriate USAID missions on country level**
 - **Identify any needed local resources to include in project**
 - **Jointly drive such projects to significant scale quickly; let's make a meaningful difference!**

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