RURAL COVERAGE FOR UNIVERSAL SERVICE

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RURAL COVERAGE STATUS

Low Urbanization, Low Mobile Penetration

Countries with large rural populations with no telecommunication

High Urbanization, High Mobile Penetration

Geographically large countries with small/remote village populations with no telecommunications

Challenges

- Profitable Business Investment
- Access to Electrical Power
- Access to Transmission

- 100 countries about 600 million uncovered population (15-64yrs)
- Would require 250 000 sites

RURAL COVERAGE
Key stakeholders

- Mobile Network Operators
- Governments
  - subsidies from Government universal service funds (together with MNO) to make a viable business case in very small villages
- Non-profit organizations
  - subsidies from Non-profit organizations (together with MNO) to make a viable business case in very small villages
- Others (Facebook)
  - subsidies from other players who's got the need to build out data coverage and (together with MNO) make a viable business case in very small villages

UNIVERSAL SERVICE IN OTHER COUNTRIES

› Morocco (white zone coverage - 14000 villages)

› French senate proposed to force more efficient and ambitious coverage solution in white areas. It is to include access to mobile telephony in the universal service which now allows all to benefit a connection and use of mobile phones at a reasonable cost

› India’s Ministry of Communications and Information Technology (MCIT) is to offer a subsidy of up to 1.1 BUSD from the country’s Universal Service Obligation Fund (USOF) to operators looking to provide broadband services in rural regions of the country.

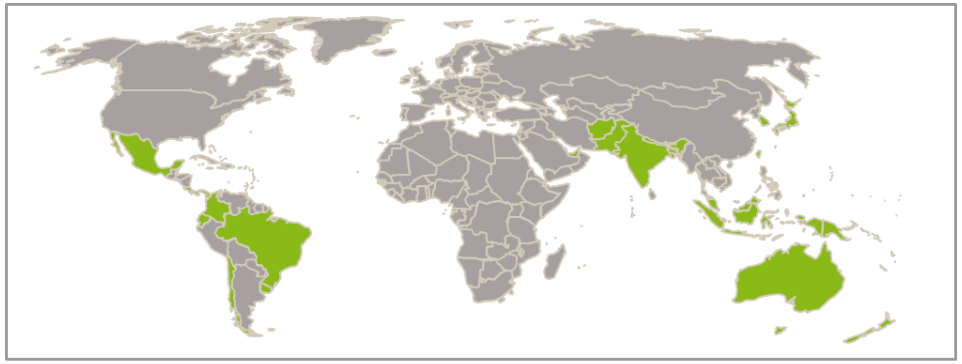
› In 2011, the USA's telecoms regulator, the FCC has approved previously announced plans to reform its Universal Service Fund and intercarrier compensation systems. These reforms create a new Connect America Fund with an annual budget of up to US$4.5 billion, which will extend broadband infrastructure to the millions of Americans who currently have no access to broadband. As part of this reform, the FCC recognizes the growing importance of mobile broadband and makes it an independent universal service objective for the first time in history.

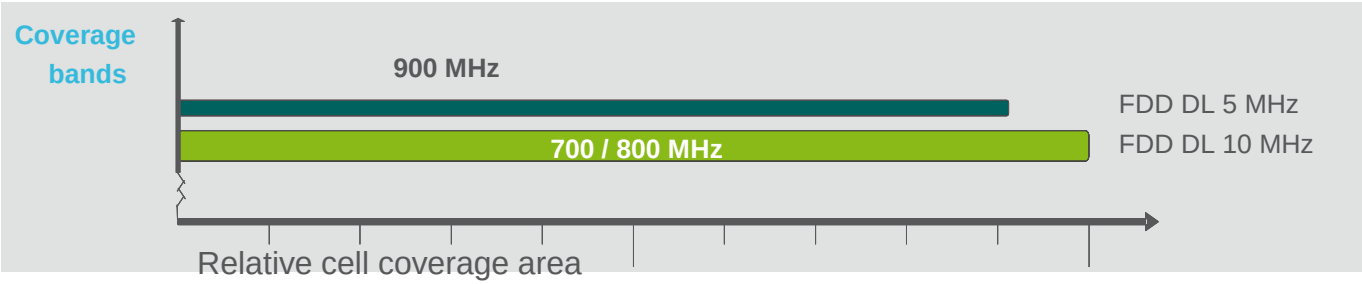
USER SERVICES DRIVING TRAFFIC

- Education
  - Connect to learn
- Mobile Commerce
  - Mobile wallet
  - Auction for farmers (connect farmers with customers)
- Safety and Security
- Refugee reconnect
- Health care
- Charging of mobile phones and PC’s possible with additional solar panels
- Satellite bandwidth is dimensioned for busy hour
  - Used during the day, by business, government, etc.
  - Used during night time to download, e-learning programs, news, emailing, etc.

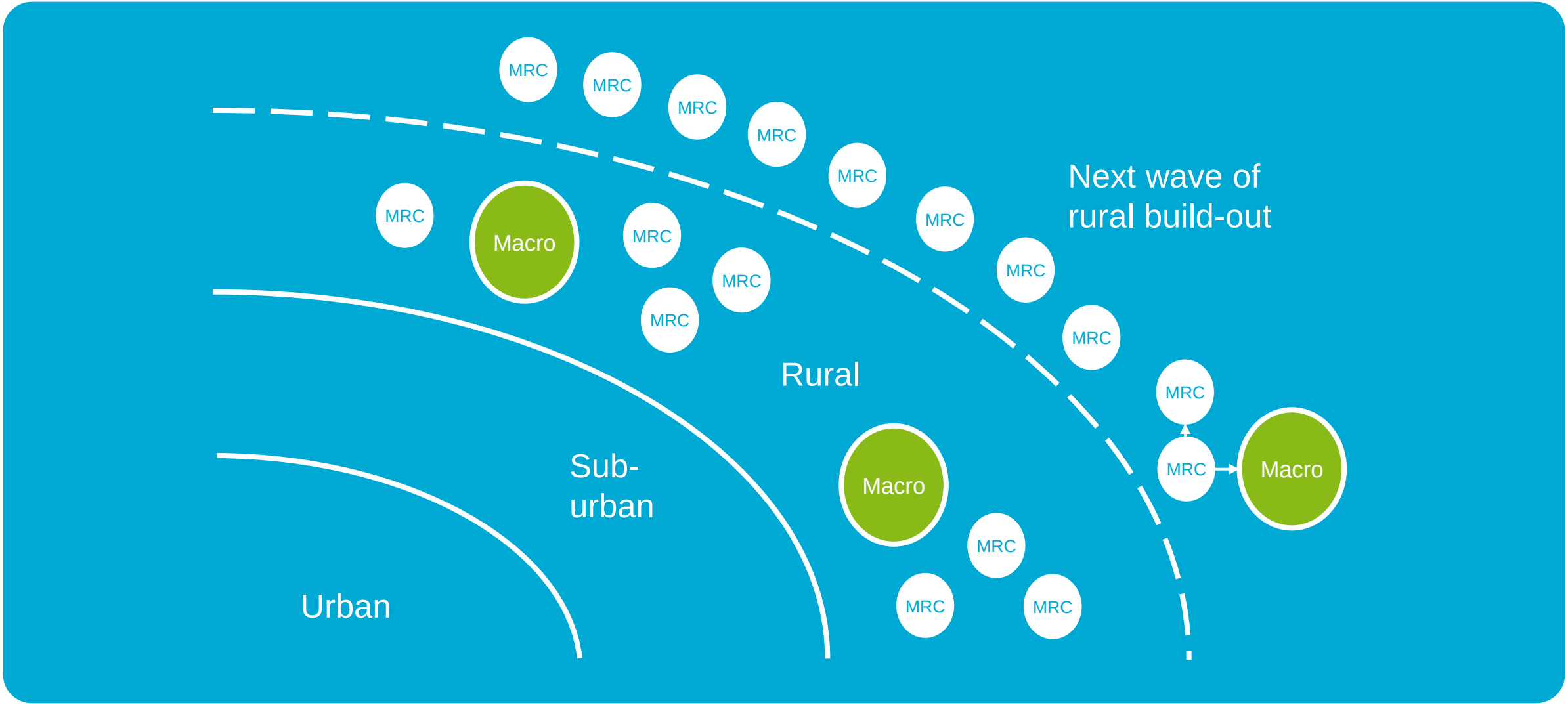
SPECTRUM FOR MOBILE BROADBAND COVERAGE

- 900 MHz bands re-deployment / re-farming for evolving technologies
  - Spectrum fragmentation, border co-ordination and competition concerns
  - Key decisions have been taken by the European Parliament and Council to allow HSPA and LTE in the 900 MHz band. EU countries were required to allow HSPA and LTE latest in May-2010
- New 700 & 800 MHz bands (UHF) enable broadband everywhere
  - UHF is three times more coverage efficient compared to some of the higher bands
  - Europe: 800 MHz band (791 - 862 MHz) in a 2x30 MHz arrangement is finalized
  - Europe, Middle East and Africa, should allocate the 694 – 790 MHz band to mobile on a co-primary basis with broadcasting. This allocation should take place directly after the WRC'15 conference. This may result in further synergies with the APT700 market and the lower duplexer of the APT700 band is therefore considered.





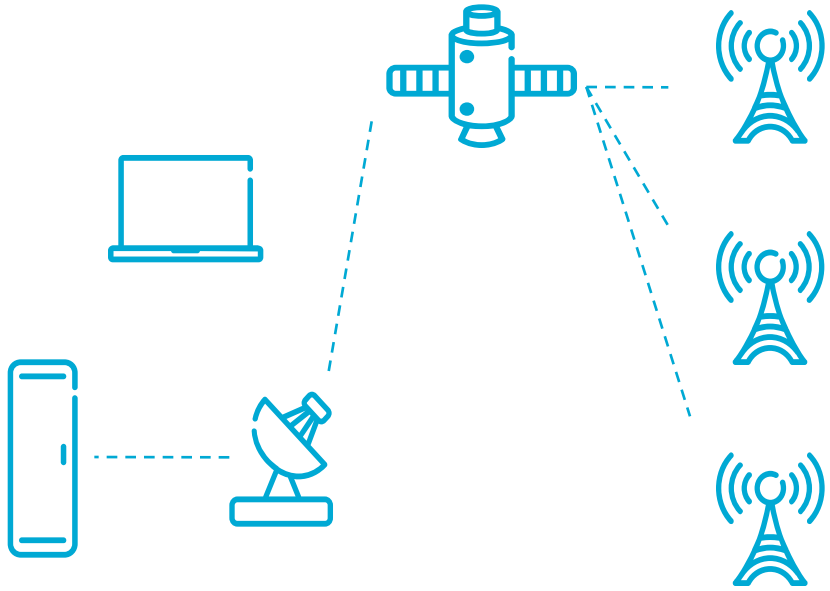
RURAL COVERAGE STRATEGIES



MANAGED RURAL COVERAGE
SOLUTION - 2G, 3G OR LTE

Operator Core Network

Ericsson responsibility: From RNC to cell site



Operator Services

Terminals

RESPONSIBILITY SPLIT

Operator

- Subscriber management and SIM card distribution
- Define site locations
- Spectrum

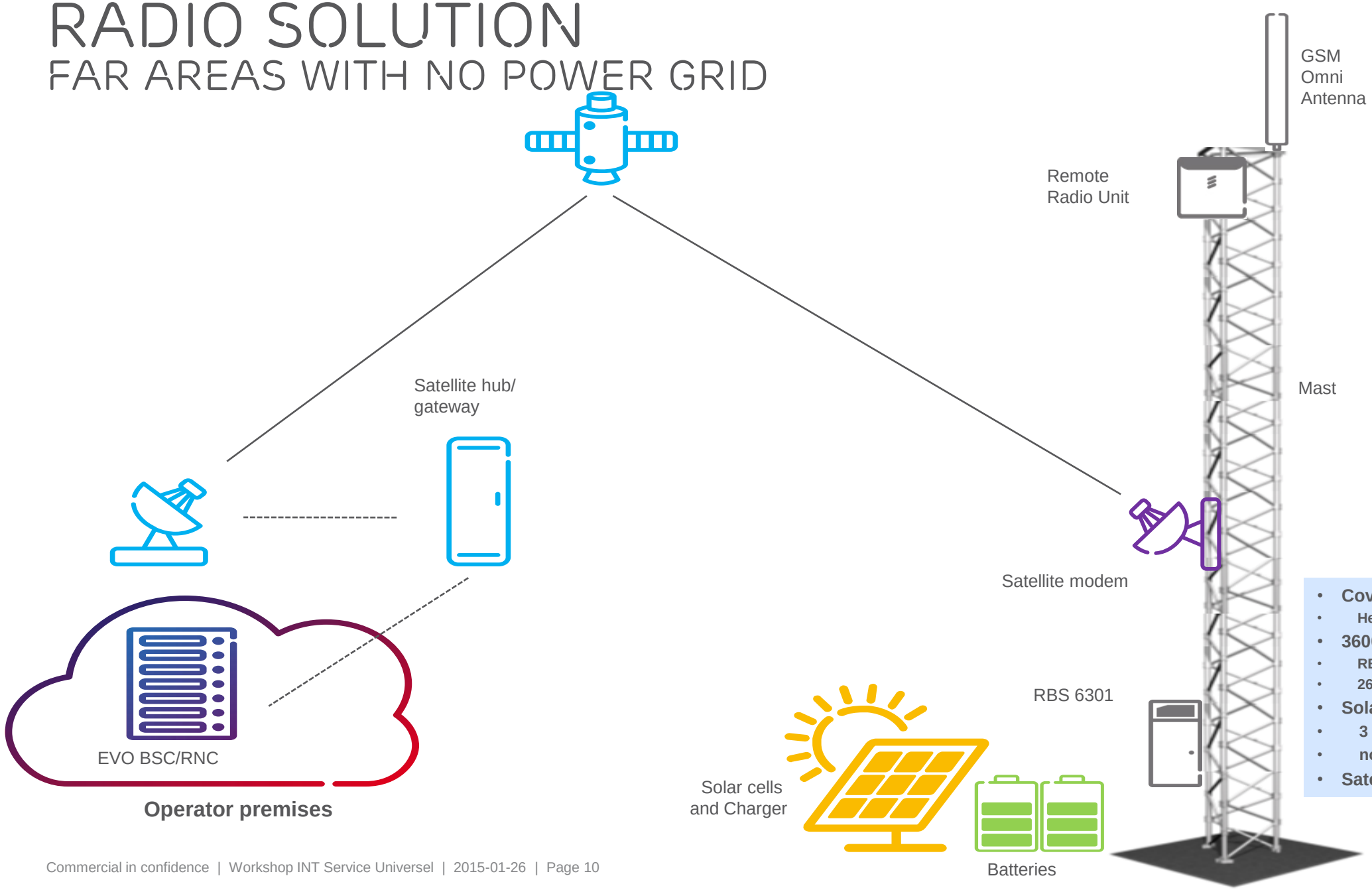
Ericsson

- Site lease and cost
- Network installation
- Access and Transmission Network
- Transmission Cost
- Operation & Maintenance
- Spare parts and support

Local Community

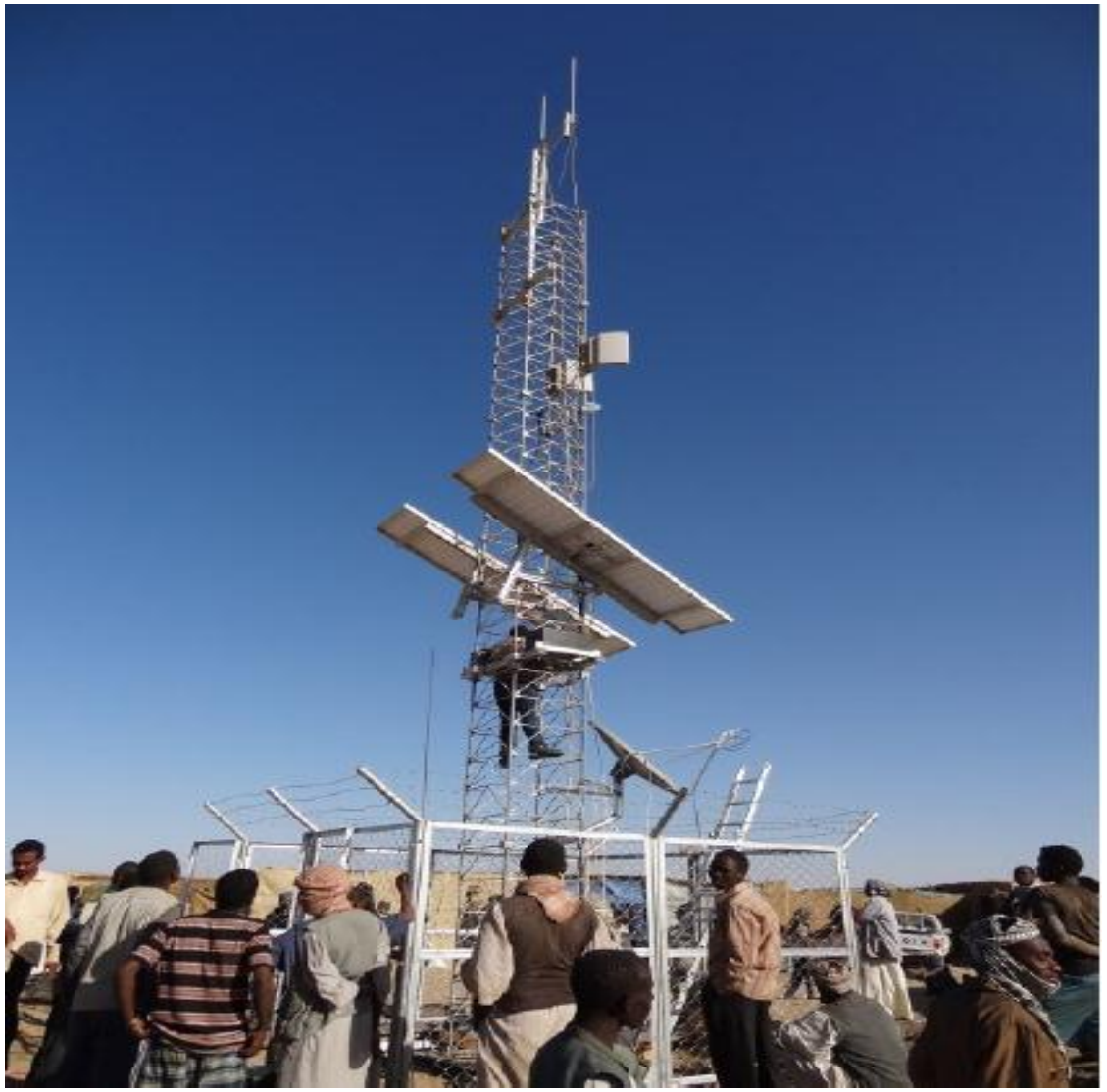
- Attract subscribers and distribute SIM cards (together with operator)
- Local lease - security and maintenance of solar panels

RADIO SOLUTION
FAR AREAS WITH NO POWER GRID

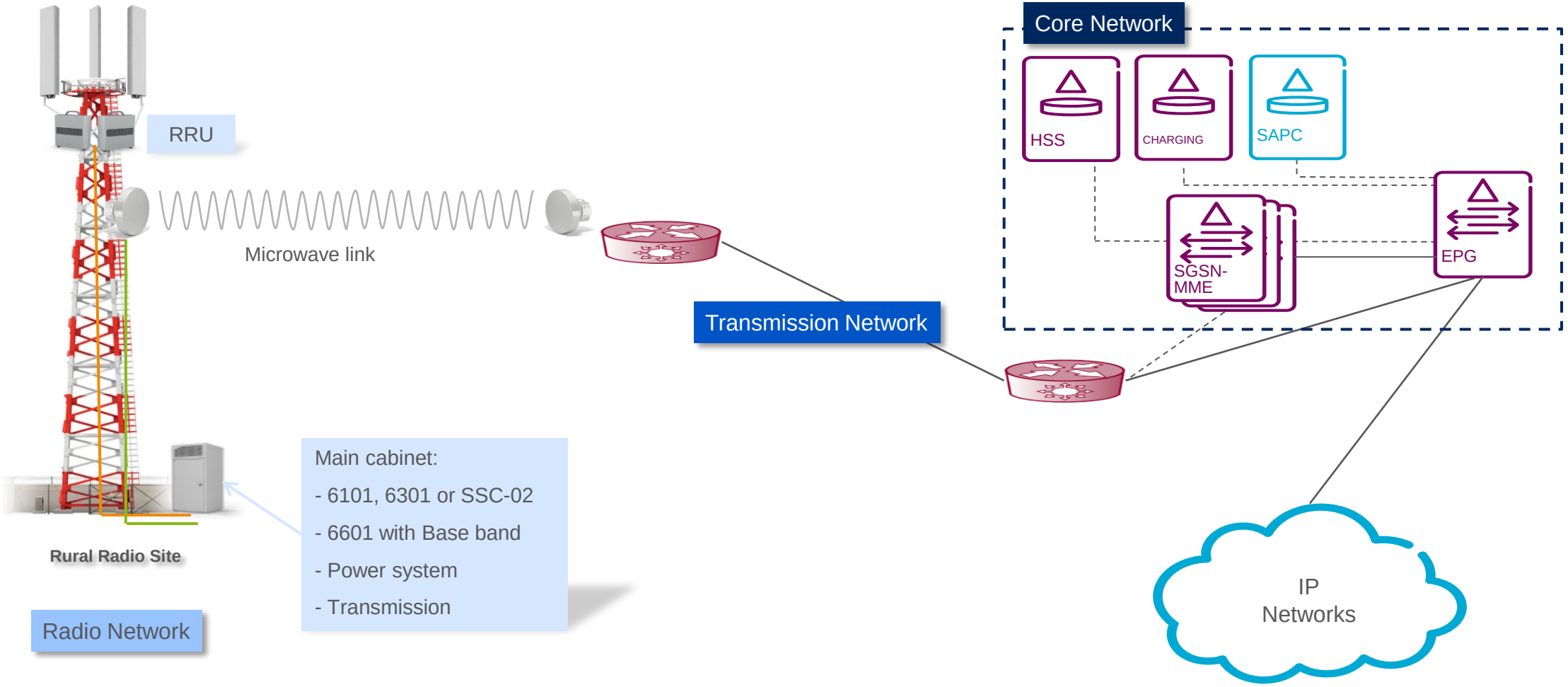


- **Coverage range 1.22km / 4.65 km²**
- **Height of mast 10m**
- **3600 subscribers (5mE)**
- **RBS 6301**
- **26 Half Rate Channels (18.4 E)**
- **Solar Panels**
- **3 days battery backup**
- **no diesel or external power**
- **Satellite Transmission included**

MANAGED RURAL COVERAGE SOLUTION



RADIO SOLUTION
FAR AREAS WITH POWER AND TRANSMISSION GRID

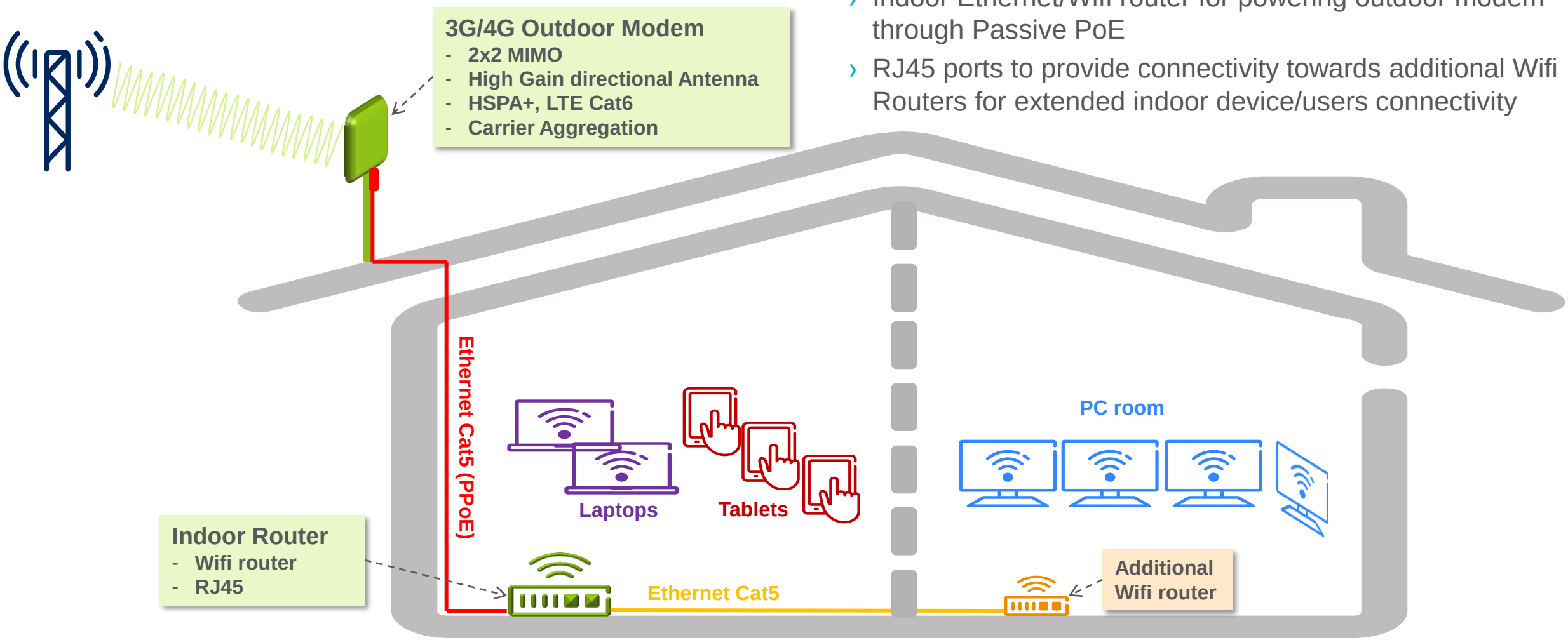


HIGH RANGE CONFIGURATION FOR 3G/LTE
BASED UPON ERICSSON PSI COVERAGE SOLUTION IN A MACRO SITE

- 1 Radio instead of 3
  - 40% power savings on RBS level (300W or 390W incl. transmission)
  - Fewer Spares
  - Battery Life @ Site
  - Fewer Site Visits
- Unique innovation providing a solution for cost-efficient broadband coverage
  - Cell radius: 5-15 km (depending on traffic profile and tower height)
- Tower height: 10-35 meter
- Available for 3G now and LTE in 2015

CPE & WIFI ROUTERS INSTALLATION
SME, GOVERNMENT, SCHOOLS

- CPE outdoor rooftop installation for optimal reception
- Indoor Ethernet/Wifi router for powering outdoor modem through Passive PoE
- RJ45 ports to provide connectivity towards additional Wifi Routers for extended indoor device/users connectivity



ICT CREATING SOCIETY BENEFITS

SOCIAL PROGRESS

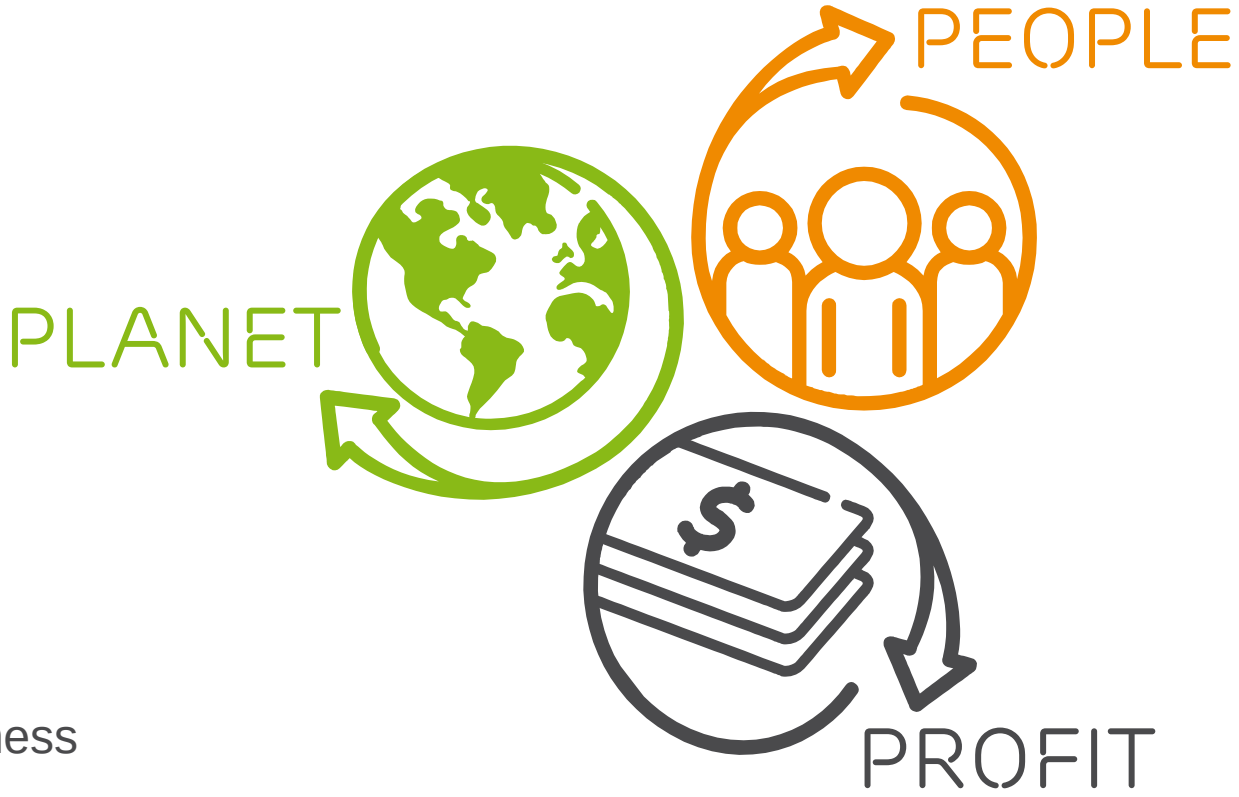
- Education
- Health
- Inclusion

ENVIRONMENT PROGRESS

- Resources
- Pollution
- Climate change

ECONOMIC PROGRESS

- Productivity
- Competitiveness




SHARP
THE EXCELSIOR
ERICSSON