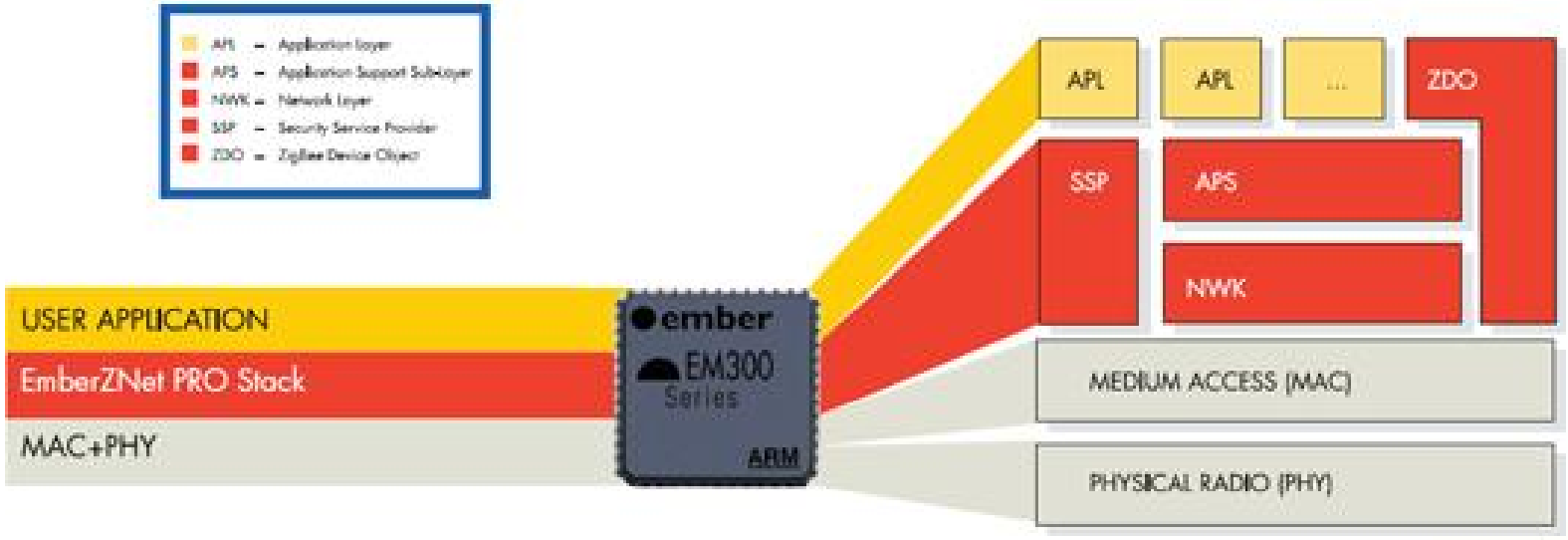
ZigBee platform

Hardware - firmware platform

Chipset technology: Ember

Hardware:EM300 series (System on Chip)
http://www.ember.com/products_zigbee_chips_e300series.html
Firmware: EmberZNET Pro compliant with ZigBee PRO and implementing features beyond
http://www.ember.com/products_zigbee_software.html



ZigBee features of Chipset technology

Feature Comparison - Ember's EmberZNet PRO vis-a-vis ZigBee Feature Set and ZigBee PRO Feature Set

Standard Feature	ZigBee Feature Set	ZigBee Pro Feature Set	EmberZNet PRO
Addressing	Tree	Stochastic	Stochastic
Routing	Tree and Mesh	Mesh	Mesh
Aggregation	NO	Required	YES
Asymmetric Links	NO	Required	YES
Frequency Agility	Optional	Required	YES
APS Multicast	Required	Supported	YES
Network Multicast	NO	Required	Supported
Fragmentation	Optional	Optional	YES
Base Security	Residential	Standard	Standard
APS Encryption	Optional	Optional	YES
High Security	NO	Optional	NO
Enhanced Sleepy & Mobile ZEDs	NO	NO	YES
Dense Networks	NO	NO	YES

Note: Ember's stack EmberZNet PRO is ZigBee PRO compliant but also incorporates Ember specific enhancements.

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Hardware - firmware platform

Module technology: Telegesis

Hardware: ETRX3 Modules using Ember EM300 chipsets and adding RF circuitry and integration
http://telegesis.ds4454.dedicated.turbodns.co.uk/product_range_overview/etrx3_zigbee_module

Firmware: AT-command interface (AT-R3xx) implemented using in EmberZNET Pro
http://telegesis.ds4454.dedicated.turbodns.co.uk/zigbee_pro/

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ZigBee features of module technology

- Telegesis R300 firmware has been tested and certified for MSP (manufacturer specific profile) compliance by a test house appointed by the ZigBee Alliance.This certification includes tests guaranteeing that:
    1. Modules running the Telegesis AT-Command set **will not interfere** with existing ZigBee Networks in a malicious way
    2. Modules running the Telegesis AT-Command set **can join a 3rd party ZigBee PRO network and use its routing capabilities**
    3. Modules running the Telegesis AT-Command set **can allow 3rd party nodes to join into a network consisting of Telegesis nodes and use its routing capabilities**
- In addition to implementing a manufacturer specific application profile the AT-Command set allows for transparency allowing communication with 3rd party nodes running any public application profile.
- In addition to this a transparent endpoint has been added allowing a host processor to implement any public application profile in fully transparent mode

ZigBee features of module technology

- **Device Types**:
  COO: ZigBee Coordinator (ZC)
  FFD: ZigBee Router (ZR)
  ZED: ZigBee End Device (ZED)
  SED: ZigBee Sleepy End Device (ZED)
  MED: ZigBee Mobile Sleepy end Device (ZED)
- A **network consists** of a ZigBee Coordinator (ZC) which started the network, ZigBee Routers (ZR) and ZigBee End Devices (ZED).
- The network is always formed as a **mesh** according to the ZigBee PRO featureset of the ZigBee standard; the tree structure is not available.
- Each router can support up to 32 end devices in any combination of non-sleepy, sleepy and mobile End Devices. By default the module joins a PAN as a router, but modifying registers allows you to define it as an end device.
- The coordinator is simply the device that first establishes the PAN, and it should not be allowed to leave the PAN as it is not possible for a node that is already joined to the PAN to take over the role of a coordinator or Trust Centre.