

SoftNEBS New Targets for ATCA

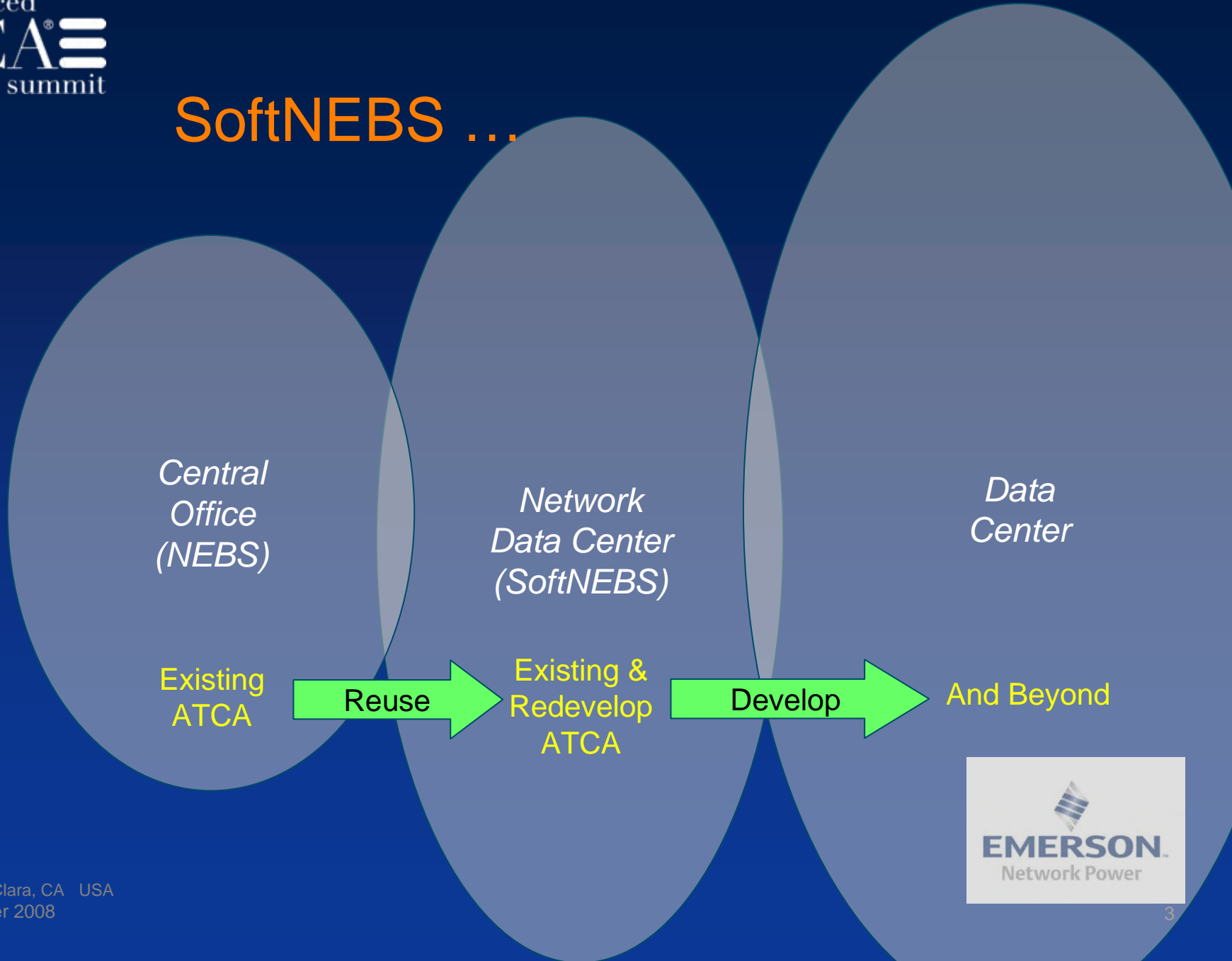
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What is ... SoftNEBS

- Emergence of the Network Data Center
 - Aspects of the central office and data center combined
- A “Softening” of the NEBS requirements
- Can also be known as “Carrier Enterprise”

- A new market for ATCA

SoftNEBS ...



Data Center reqs.

- Thermal
 - 10 to 35deg C
 - Ambient 20-25 deg C
 - No requirements for operation beyond max temperature
 - Facility can support significant heat
- Mechanical, commonly 1000mm+ depth racks
 - Compares with 600mm for Central Office



Data Center reqs.

- Predominantly AC power distribution
- Acoustics - NEBS Unattended limits
- Element and Blade level redundancies as per Central office apply
- Some Gaps
 - Vibration & Shock resistance
 - Transportation, handling and storage
 - Earthquake resistance



Data Center ... as per NEBS

- Surface and Air temp
- Airborne contaminants
- Safety
- EMC
- Design and Manufacture
- Ecological Compatibility

Comparisons

Description	Central Office	Data Center
Power	DC	AC
Thermals	0 to 55 deg C and Extensions	10 to 35 deg C
Mechanical	560mm	1000+mm
Acoustics	NEBs Unattended	None
Lifetime	10 years +	2-3 years
Mechanics	600mm	1000+mm



So SoftNEBS can be ...

- DC Thermal/environmental reqs
- CO Reliability
- DC Lifetime
- DC Power is now AC
- DC Mechanical
- CO/NEBS shock/vib/acoustics/transportation
- Safety/EMC etc as per ETSI

In more depth ...

- ATCA is a super set of Carrier Enterprise/Data Center requirements
- Thus we can look at removing functionality
- OR
- Increase the benefit to the end user/customer

Thermal

- 20-25 degC ambient air
 - No extended temperature requirements
- Max temperature of 35deg C
- Altitude reduced

- Ability to support more power per blade

Power

- As we have improved cooling capabilities
- Ability to support 350 -400Ws per blade
 - PICMG 3.0 R3 support 400W per blade
- Dynamic power management
 - Verizon TEER requirements
 - IXIA (efficiency of performance)
 - SCOPE Energy Efficiency
- The Green requirements



Mechanical

- ATCA fits in 1000mm racks
- Allows for innovation
 - Performance density
 - Orientation changes
 - Back to back racks
 - ...
- Airflow still front to back/ hot/cold aisle
- Cabling requirements challenge



AC to DC

- Reduction of complexity
- Utilise AC to DC converters
 - Avoid use of UPS for AC (physically large)
- Provide insulation/protection
 - Reduction in required functionality in system
 - More controlled over feeds
- Per frame basis / or multi frame

Lifetime

- 3+ years, not 10+ years
- Commercial silicon
 - For all functions, CPU, Memory,
- Increased performance
 - More power available per blade
- Significantly reduced cost
 - Long lifetime support not required
- Pin compatible

Reliability

- As per NEBS Central office
- ATCA provides 6 9's as it stands, proven at over 5 9's in the field
- Reductions in functionality must not affect this as reliability requirements

ATCA Barriers to Entry

- Purchase Cost
 - Reduce the overheads
 - What is needed, what is not
- Total cost of ownership
 - The green side of things
- Performance
 - We need those 350/400 W blades

Conclusion

- ATCA provides superset of SoftNEBS
- Commercial silicon and Thermals key
- Innovation required
 - Change the mechanics
 - Reduce superset while maintain reliability
- Meet new goals