

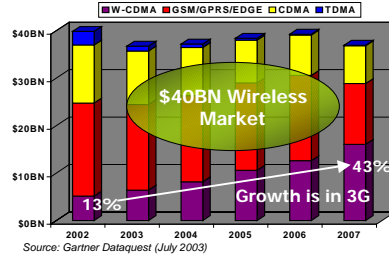
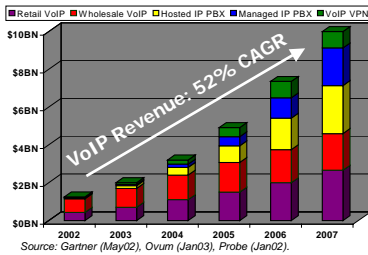
ATCA in NGN & 3G Infrastructure Solutions

Prasad Kallur

Agenda

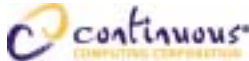
- NGN and Wireless – Market Trends
- ATCA
 - Technology
 - Key Advantages
 - ATCA – applied to NGN and 3G

NGN and Wireless Market Drivers



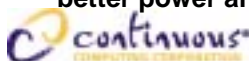
- Lower OpEx for carriers
- Huge cost savings for consumers
- Developing world skipping directly to packet voice
- Multi-media & multi-modal service applications driving market adoption
- Accepted, cost-effective standards and increased interoperability

- Deploying data increases ARPU and reduces churn
- 3G Wireless deployment is happening
- Upgrades to GSM/GPRS/EDGE
- “Video Services are set to turn the mobile phone into the 4th screen”
- More users turning to “mobile-only” lines
- Innovative applications (e.g., Coloring, MMS, Video) driving adoption & revenue



ATCA – Drivers

- Tele-density increasing across the developing nations but still market penetration is low
- Need for cost-effective, standards based solutions for rapid deployment
- Interoperability key requirement
- Services driving carrier revenues
- TEM’s need to update and upgrade products more quickly
- Carriers also driving platform standardization to ease operational management and support
- Need for higher density and higher performance systems
- cPCI-2.x addressed control plane issues adequately but no good standards for data-plane solutions
- Increase in processor capabilities and performance also required better power and cooling capabilities



ATCA – Key Technology Advantages

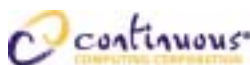
- Ability to cool and power up-to 200 watts per-slot
- Separate base and fabric backplanes to address need for standards based control & data plane network elements
- Switched inter-connect architecture to address needs of high-speed voice, data and multi-media switching applications
- Larger board real-estate and size to address high application performance needs
- Support for clock signals across backplane to meet network synchronization requirements
- Fabric backplane for ease of integration of advanced storage technologies
- Hot swappable AMC modules for flexibility and ease of servicability
- Standards based shelf-management to ease platform management issues during deployment
- SAF-HPI and SAF-AIS standards to address higher level system management needs



ATCA – Market Acceptance

Segment	Equipment Types	ATCA System Units 2007
Wireless Access	BTS/Node B, BSC/RND, Transcoder	38%
Wireless Edge	MSC, HLR, GGSN, SGSN/PDSN, Billing Server, Multimedia Server	50%
Wireline Access	DSLAM, CMTS, MxU	1%
Edge	Edge Router, Multiservice Switch, Optical Edge Device	3%
New Access	Edge Media Gateway, Softswitch, Media Server	21%
Core Transport	Core Router, SONET/SDH, ADM, WDM	Less than 1%
Signaling	Signaling Server, STP, SCP	5%

Source: RHK



CompactPCI

vs.

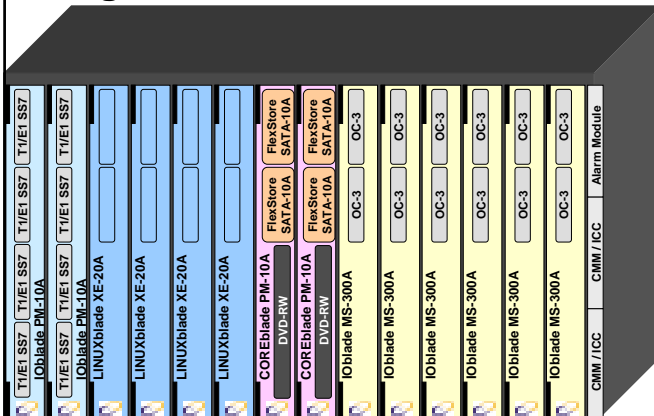
Advanced TCA™

Attribute	PICMG2 / CPCI	PICMG2.16 / CPSB	PICMG3 / ATCA
Board Size	6U x 160mm x .8" 57 sq in + 2 Mez	6U x 160mm x .8" 57 sq in + 2 Mez	8U [*] x 280mm x 1.2" 140 sq in +4 Mez
Board Power	35-50W	35-50W	150-200W
Backplane Bandwidth	~4Gbit/s	~38Gbit/s	~2.4Tbit/s
# Active Boards	21	19	16
Power System	Central Converter 5, 12, 3.3V Backplane	Central Converter 5, 12, 3.3V Backplane	Distributed Converters Dual 48V Backplane
Management	OK	OK	Advanced
I/O	Limited	OK	Extensive
Clock, update, test bus	No	No	Yes
Regulatory conformance	Vendor specific	Vendor specific	In standard
Multi-vendor support	Extensive	Building	Anticipated in 2003
Base cost of shelf	Low	Low - Moderate	Moderate
Functional density of shelf	Low	Moderate	High
Lifecycle cost per function	High	Moderate	Low
Standard GA Schedule	1995	2001	2H2003

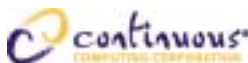


ATCA – NGN Applications

Integrated VoIP Network Node

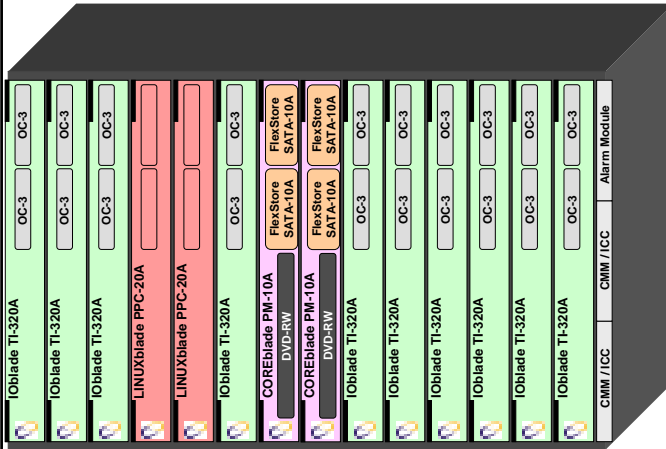


- Redundant Switch and OAMP blades
- Redundate i/o blades for signaling gateway function
- Redundant high-performance CPU blades for Call Control and Service Control
- Media-blades for Voice and media transport and switching

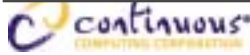


ATCA – 3G Application

Wireless Media Gateway Node



- Redundant Switch blades for
 - Switching
 - OA&M
 - Disks and DVD-RW
- Redundant High performance processing blades
- Media blades for media termination, transformation and switching
- Telecom Platform
 - NEBS design
 - Telco alarming
 - Redundant shelf management



Advanced TCA™ Solutions from Continuous Computing



Linux



PMC Modules



AMC Modules



DSP Resource Blade



SWITCHblade



LINUXblade



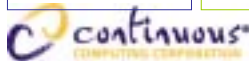
Storage





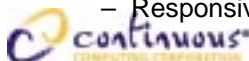
Protocol Stacks from Continuous

VoIP	SS7	Wireless	SIGTRAN	Broadband
H.323	MTP1/2/3	3G	SCTP	AAI2
- v4	- Variants	R99, R4, R5	- RFC2960	- Q.2630.1
- Annex	SCCP	- RANAP	M3UA	Q.SAAL
MGCP	- Variants	- RNSAP	- RFC3332	Q93B
- RFC 3435	ISUP	- GTP u/c'	M2UA	CIP
- Packages	- Variants	- BSSAP+	- RFC 3331	Legacy
MEGACO	TCAP	- GMM/SM	IUA/DUA/V5UA	ISDN
- RFC 3525	MAP	R99, R4	- RFC3057	V5
- IG v6	- 2G/GSM/3G	- RRC	SUA	Frame Relay
- Packages	- IS41 / WIN	- RLC/MAC	- Draft 3	
SIP	CAP	- NBAP		
- RFC 3261	- Phase III	- PDCP		
- Extensions	INAP	- FP		
RTP	Broadband SS7	GPRS		
RTCP	- MTP3B	- BSSGP		
		- SNDCP		
		- BSSAP		
		- NS		
		- LLC		
		2G		



Continuous Computing: Your Solution Partner

- We provide essential building blocks to create and deploy converged voice, video and data
- We serve > 250 telecom equipment manufacturers worldwide including every major vendor in the VoIP and 3G Wireless markets
- Key advantages include:
 - Single vendor solution providing necessary modules for building a carrier-grade Wireless Media Gateway solution
 - Additional services for application development, porting & integration
 - Proven, field-deployed, interoperable solutions
 - Carrier grade performance and reliability
 - Responsive customer & life cycle support



Thank You