

融合通信的革命技术-主机媒体处理

HMP

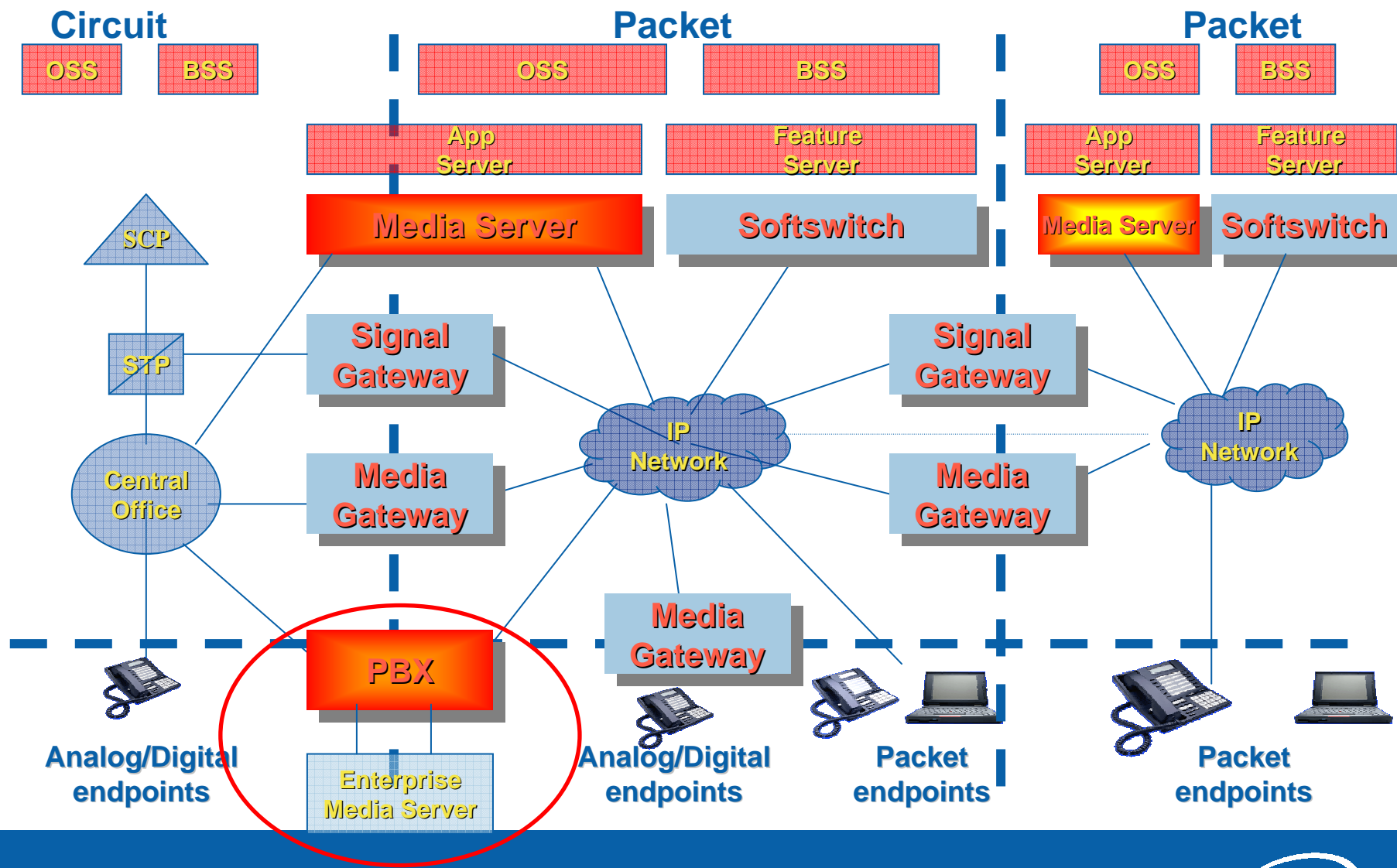
Intel通信产品中国总代理

北京思安华胜科技有限公司

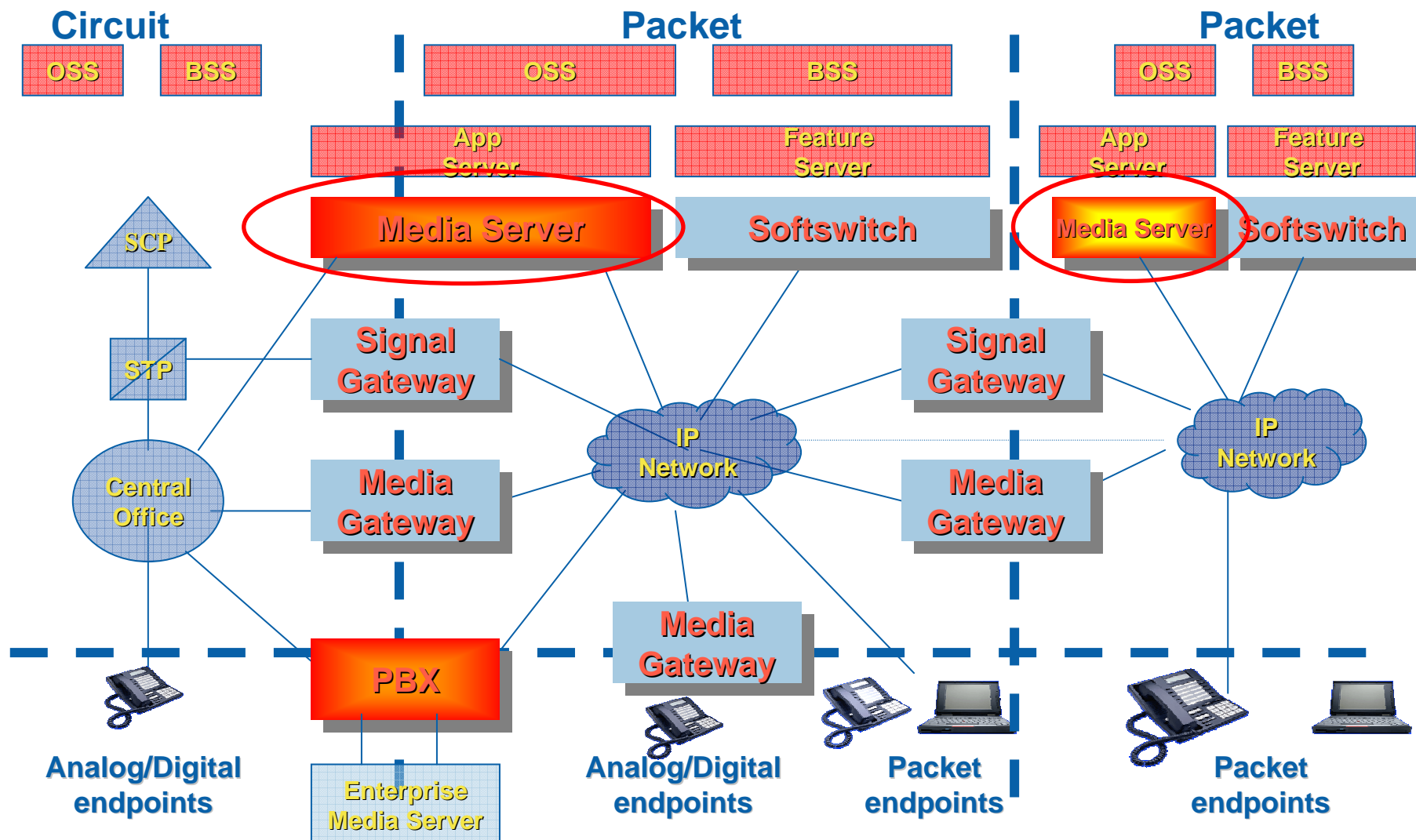
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2006-4-4

融合通信网络中的媒体服务

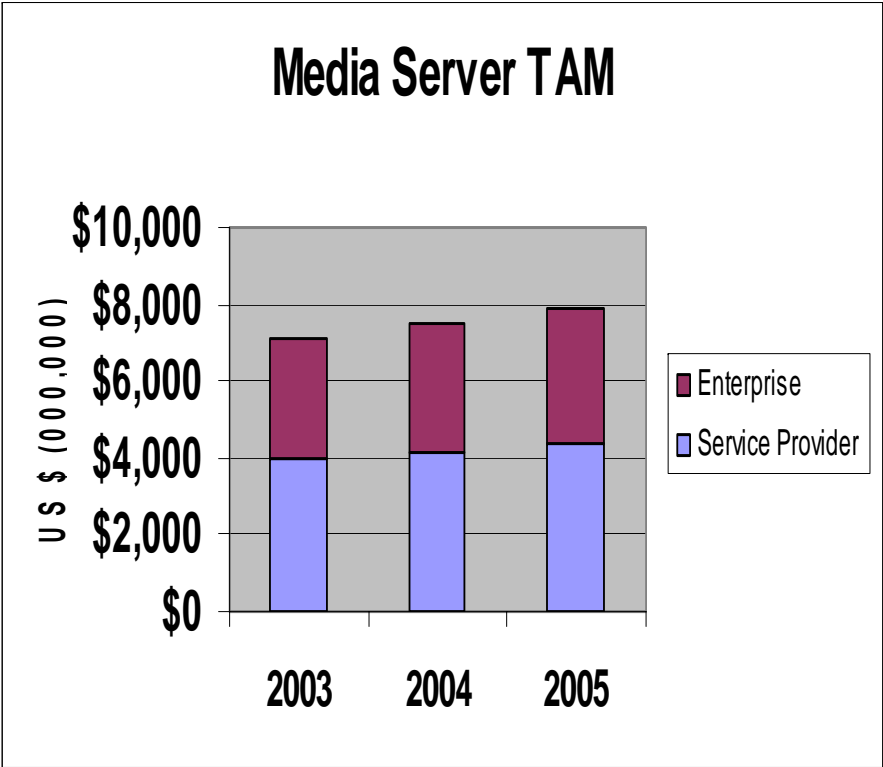


融合通信网络中的媒体服务



媒体服务的市场概况

- 典型应用
 - Voice Mail / Unified Messaging
 - Call center/Connect center
 - IVR
 - Conference Bridge
 - Debit Card/Call Card
 - Call Logging
 - Personal Assistance
 - Video



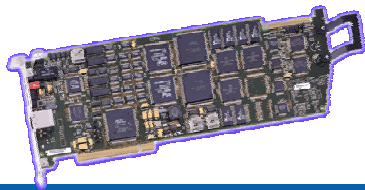
融合通信的趨勢 - HMP

Traditional DSP Solution

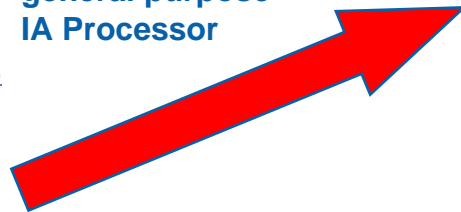
Motherboard w/IA 32 CPU
Manages Control Functions



PCI Telephony card with DSPs
Manages PSTN interface
(analog/digital T1/E1)
& Media Processing



Media Processing
function shifts
from DSP to the
general purpose
IA Processor



HMP Solution

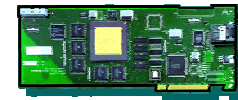
Motherboard w/IA32 CPU
Manages Control AND
Media Processing Functions



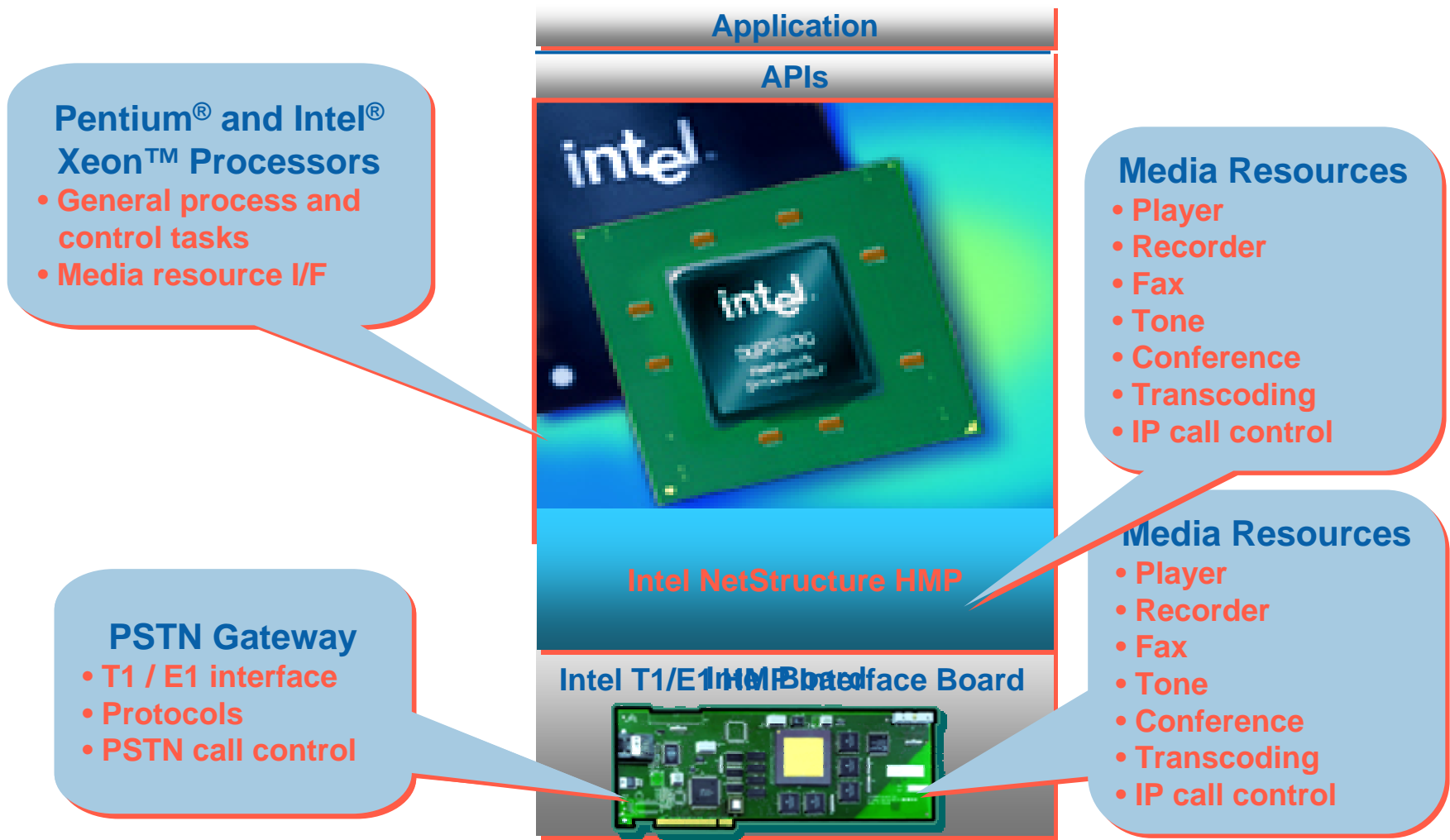
Intel® NetStructure™
HMP 2.0



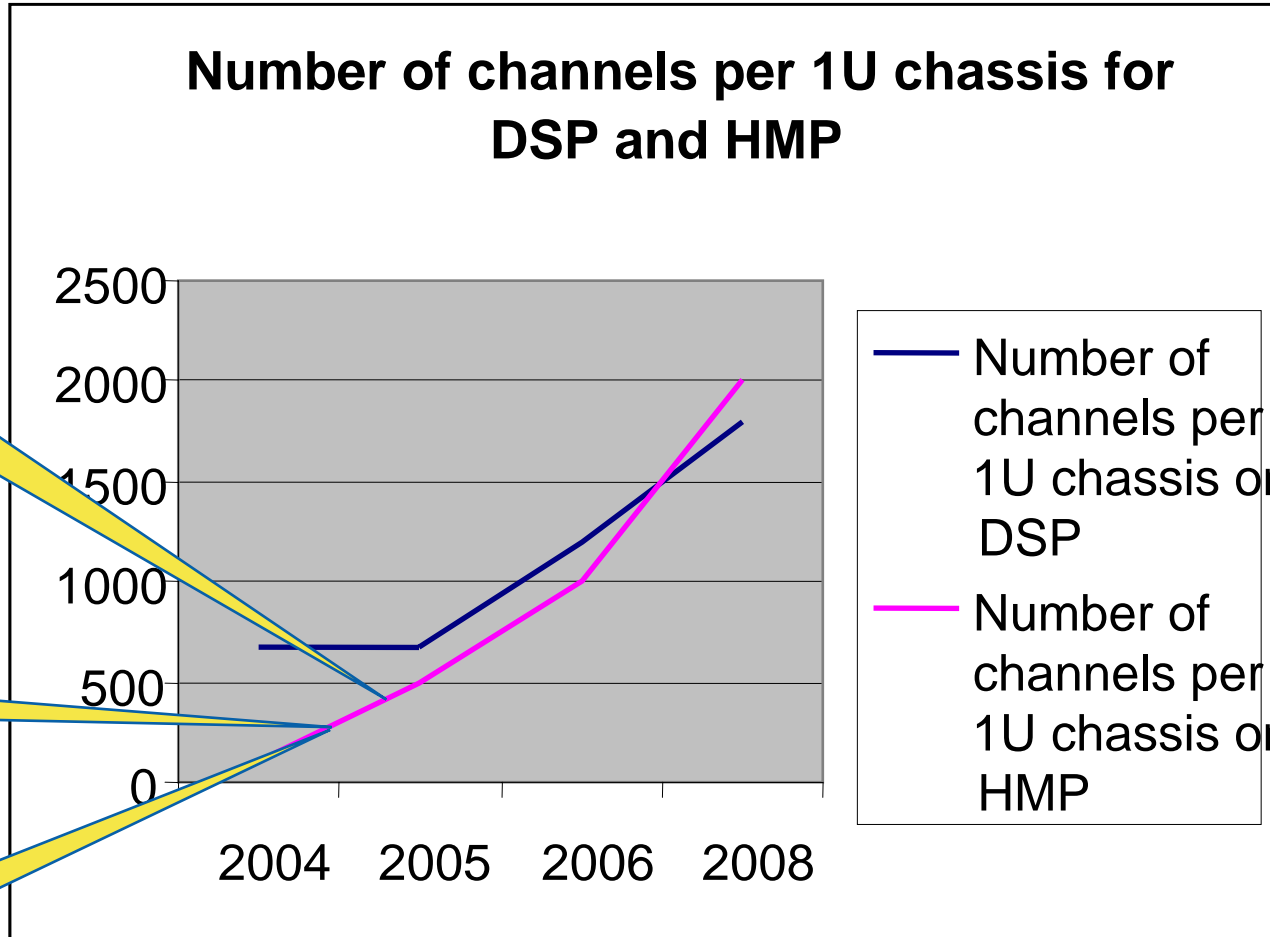
Thin PCI Circuit NIC
Manages PSTN interface
(analog/digital T1/E1)



融合通信的趋势 - HMP



媒体服务- IA vs. DSP



Large Enterprise and Service Providers (200-500 channels)

Enterprise (100-200 channels)

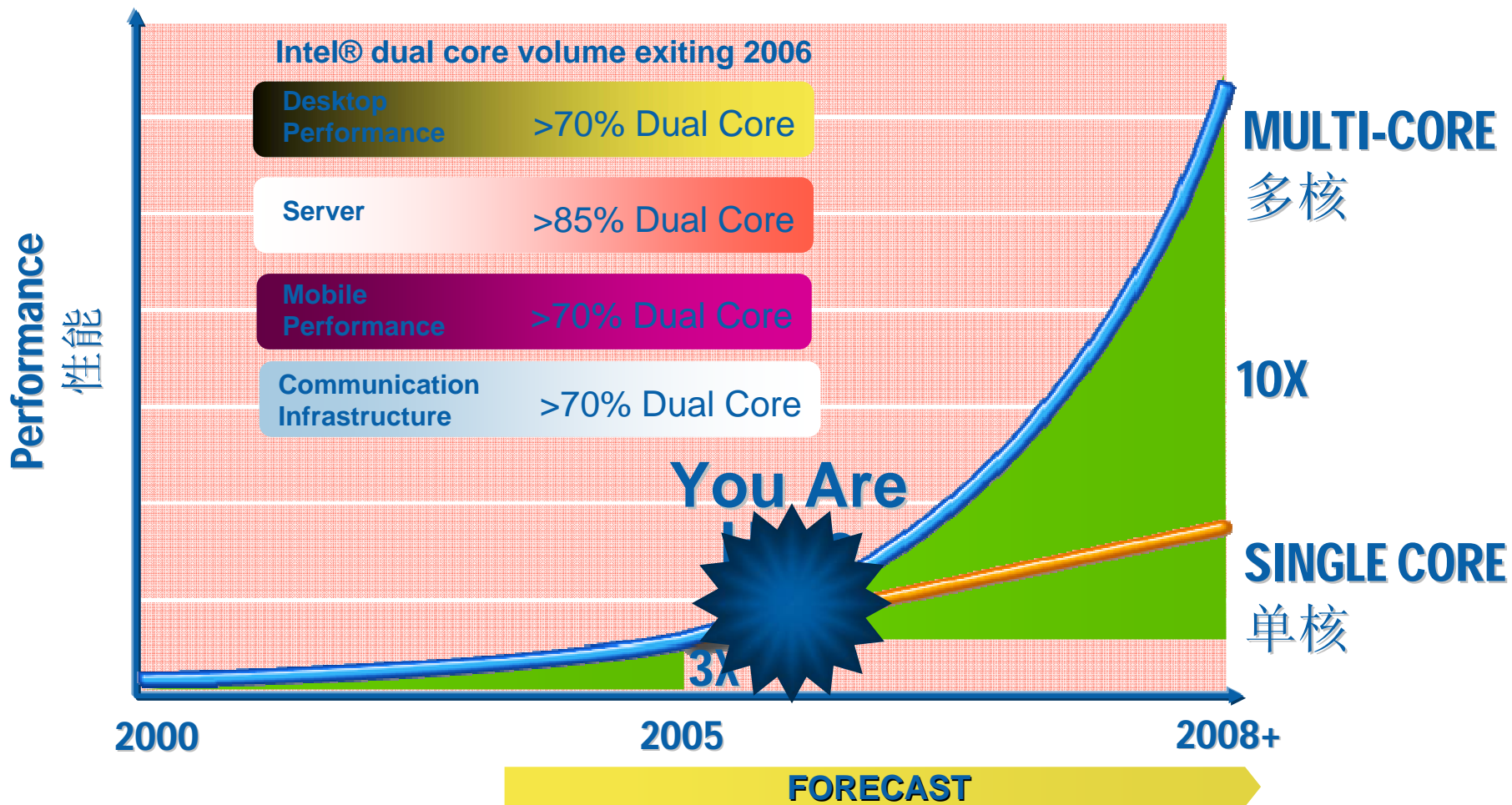
SMB (<50 channels)

**Source: NPG analysis based on preliminary lab estimates*



并行处理提升性能

单核: 线性级提升性能
多核: 指数级提升性能



Intel 技术对HMP处理能力提升

HMP 的性能提升

Hyper-Threading Technology

超线程技术

Multiple virtual CPUs

Lower CPU utilization

Increased system density

More features

More headroom

+35%*

Multi-core

多核技术

Multiple processor cores

Multiple threads per core

True parallel execution

Increased capabilities

Advanced coder support

Video encode/decode

Dual Core: +35%*

Intel I/O Acceleration Technology

I/O加速技术

Optimized TCP/IP Stack

Reduced latency

Reduced IA processor overhead

Efficient packet processing

Estimate: +20%*

Intel® EM64T

64位技术

Increased memory addressing

64-bit computing

Improved OS performance

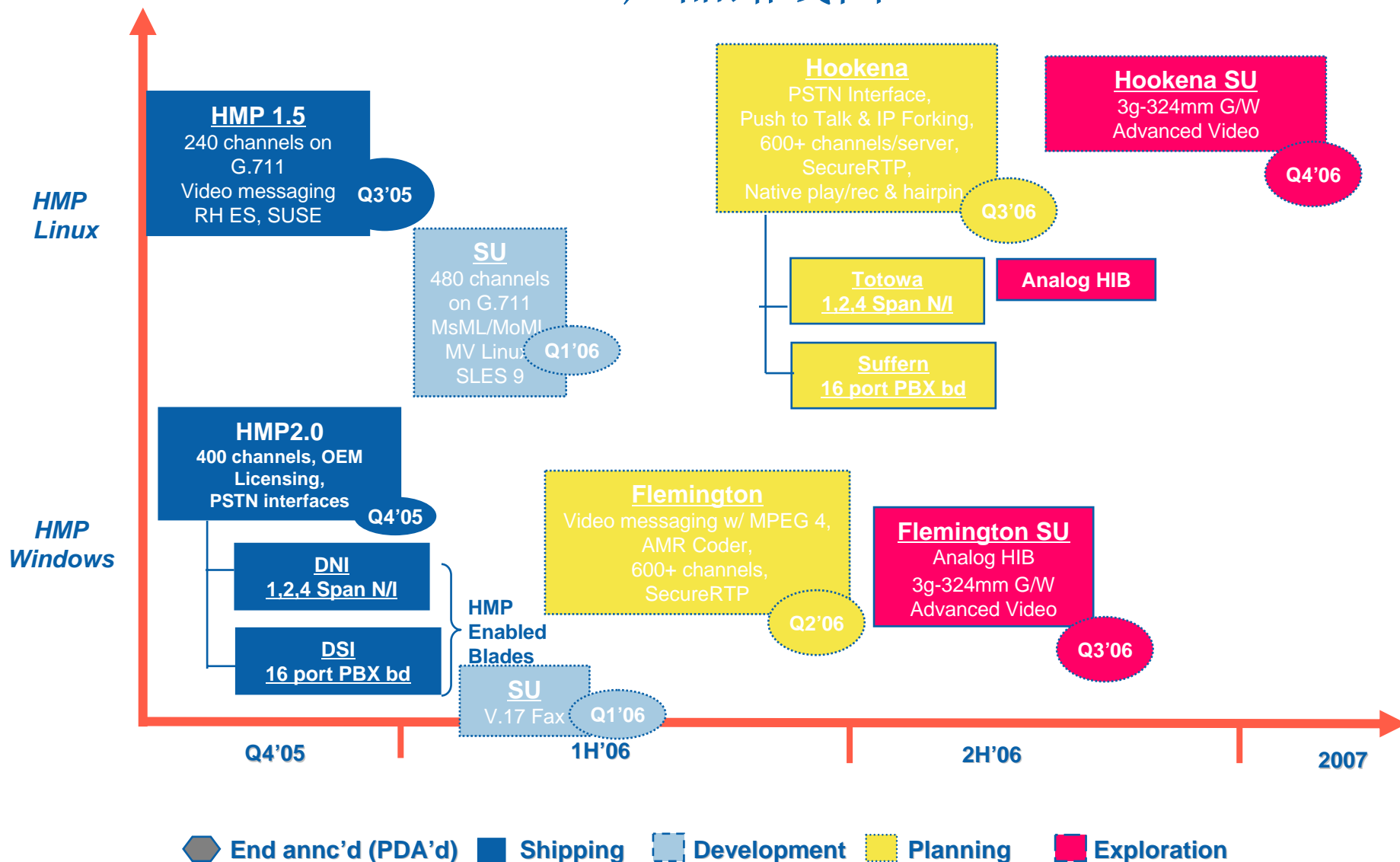
Better file I/O

Reduced memory latency

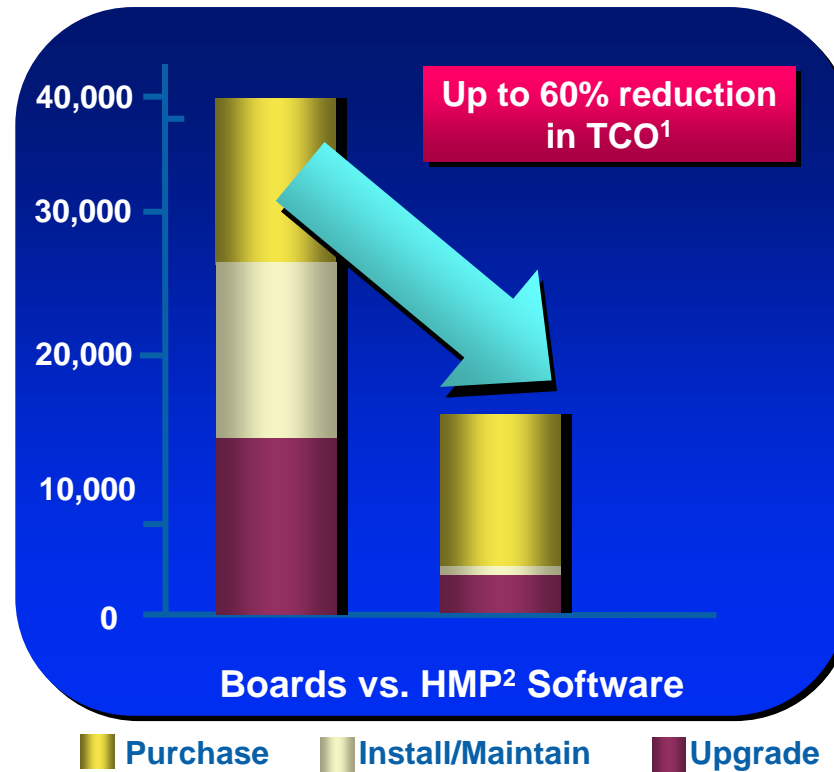
Estimate: +5%*

Represents estimated increase in system capacity

HMP 产品路线图



HMP 降低融合通信应用总成本



¹Based on internal benchmarks

²Intel NetStructure[®] Host Media Processing Software

HMP 降低融合通信应用总成本

开发

- 节约安装及测试成本
- **Easier to upgrade, keep pace with releases**

购买

- 购买灵活方便

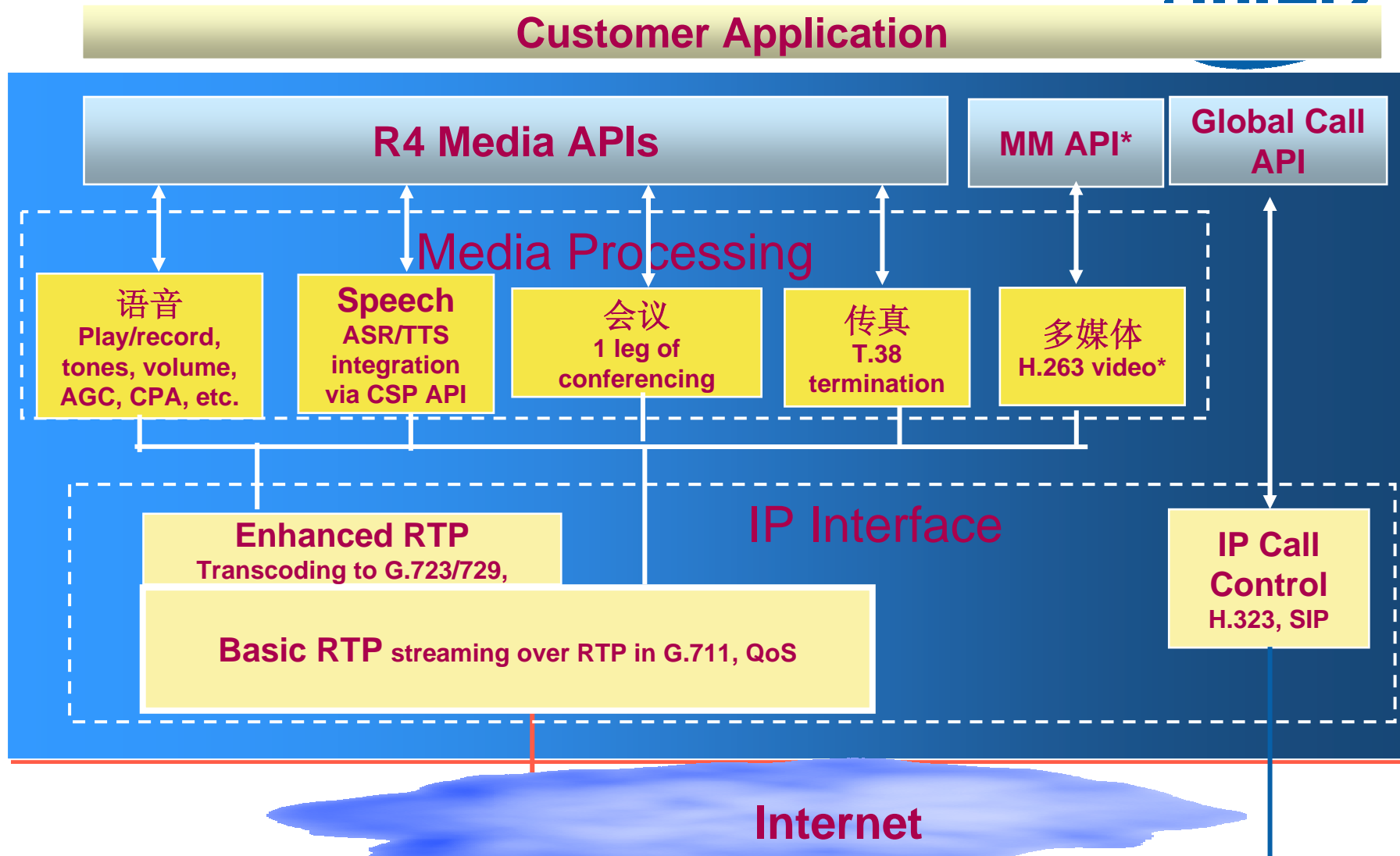
部署

- 无库存
- 更少的物流费用
- 无需物理安装
- **Reduced requirement for regulatory approvals**

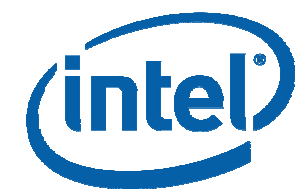
售后

- 无需备件
- **Requires less space and power**
- 易于升级 (even remote)
- **Improved overall availability**

HMP 需授权资源



* Available in HMP1.5 Linux now



HMP 2.0

的性能提升

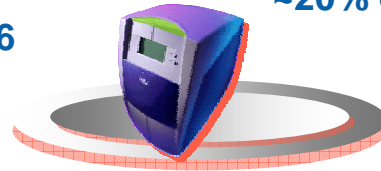
HMP 2.0 的处理能力提升

HMP资源	最大单机密度
RTP G.711	400 Channels
Enhanced RTP	120 Channels
IP Call Control	400 Channels
Voice	400 Channels
Speech	240 Channels
Conference	400 Channels
Fax	120 Channels

HMP性能与应用举例

SOHO Messaging

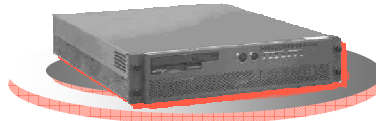
10 IP Phones w/G.726
Voice Mail
Fax



~20% of 1 Ghz Intel® Celeron® M Processor system

Small Enterprise

40 IP Phones (G.711)
Speech-Enabled Voice Mail
Conferencing
Fax



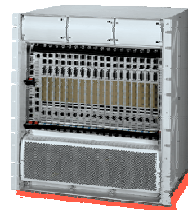
~25% of 2 Ghz Intel® Pentium® 4 Processor system

Carrier/Large Enterprise/Call Center

500 IP Phones
Voice Mail
Conferencing
Fax



~40% of two 3 Ghz Dual Intel® Xeon® Processor RMS system, or,



~60% of two 2 Ghz Dual Intel Xeon Processor AdvancedTCA* Blades

HMP 性能数据参考

The following is for HMP1.2/HMP1.3 MIPS calculation, we will update the data for HMP 2.0 soon

Megahertz Consumption:

Licensable Entity	MHz per Instance			
	Intel® Pentium® III Processor	Intel® Pentium® 4 Processor	Intel® Xeon™ Processor	Intel® Pentium M Processor
Low-bit-rate coders for play/record	5	6	6	4
Voice	3	4	3	2
T.38 fax	5	6	6	3
Conferencing	5	6	6	3
Speech (Intel® Dialogic® Continuous Speech Processing Technology)	2	2	2	1
RTP G.711	5	6	6	3
Enhanced RTP (LBRs) (G.729ab, G.723.1)	32	38	35	24
Call control (SIP, H.323, H.450.2)	2	2	2	1

Dual CPU multiplier 0.8; Hyper-Threading multiplier 1.3;



HMP 性能计算举例

High-Density Conferencing System

- **RTP:** 240 channels
- **Voice:** 120 channels
- **Conferencing:** 240 channels
- **IP call control:** 240 channels

Resource	MHz per Instance	Channels	Total CPU Consumption
RTP G.711	6	240	1440
Voice	3	120	396
Conferencing	6	240	1320
Call Control (SIP)	2	240	528
		Total	3684

Table 5. Total Resource Consumption of CPU for High-Density Conferencing System

Calculating CPU “Budget” and Consumption

MHz per CPU 3200
No. CPUs 2
 6400

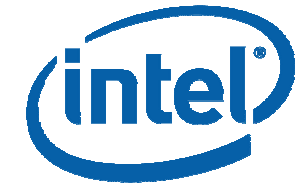
Adjust for Dual 0.8
 5120

Hyperthreading 1.3

Total Adjusted Budget 6656

HMP CPU Load: 3684
 55%



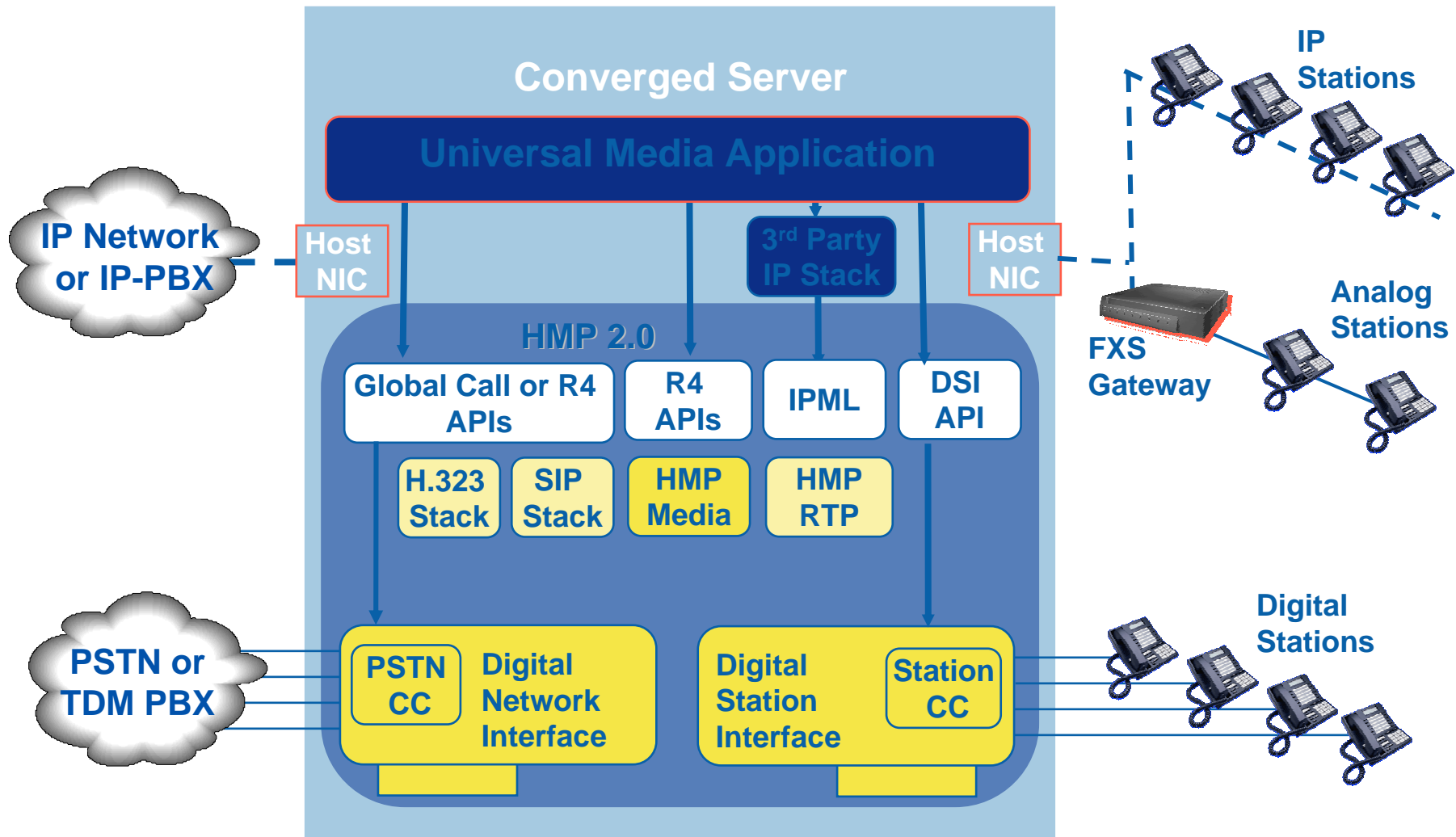


HMP 2.0

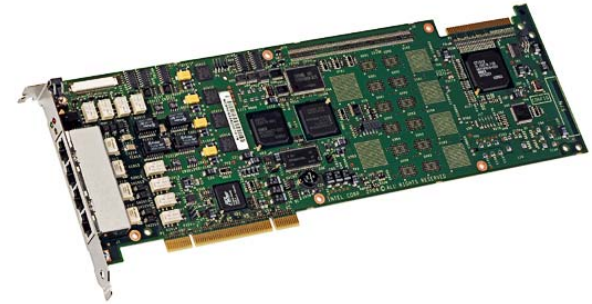
数字接口卡
数字坐席卡

(Thin blade)

HMP 2.0 驱动融合通信架构



HMP 数字接口卡 (瘦卡) support ISDN/CAS



- **DNI300TEPHMP**
 - Single T-1/E-1
 - G.168 64 ms echo cancellation on host

- **DNI601TEPHMP**
 - Dual T-1/E-1 HMP-enabled board
 - Tone detection and generation on board (DSP)
 - Call progress analysis on board (DSP)
 - G.168 64 ms echo cancellation on board (DSP)

- **DNI1200TEPHMP**
 - Quad T-1/E-1 HMP-enabled board
 - G.168 64 ms echo cancellation on host
 - CPU load calculation advised for echo cancellation and media load.

HMP 数字坐席卡

16-port digital PBX station driving boards

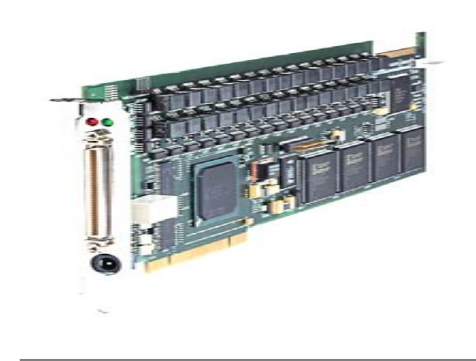
- DSI162HMP – 2 wire interface
- DIS162LGNHMP – 4 wire interface;
- Avaya, NEC, Nortel, Siemens
- Additional models / new manufacturers can be added

Full API access to station features

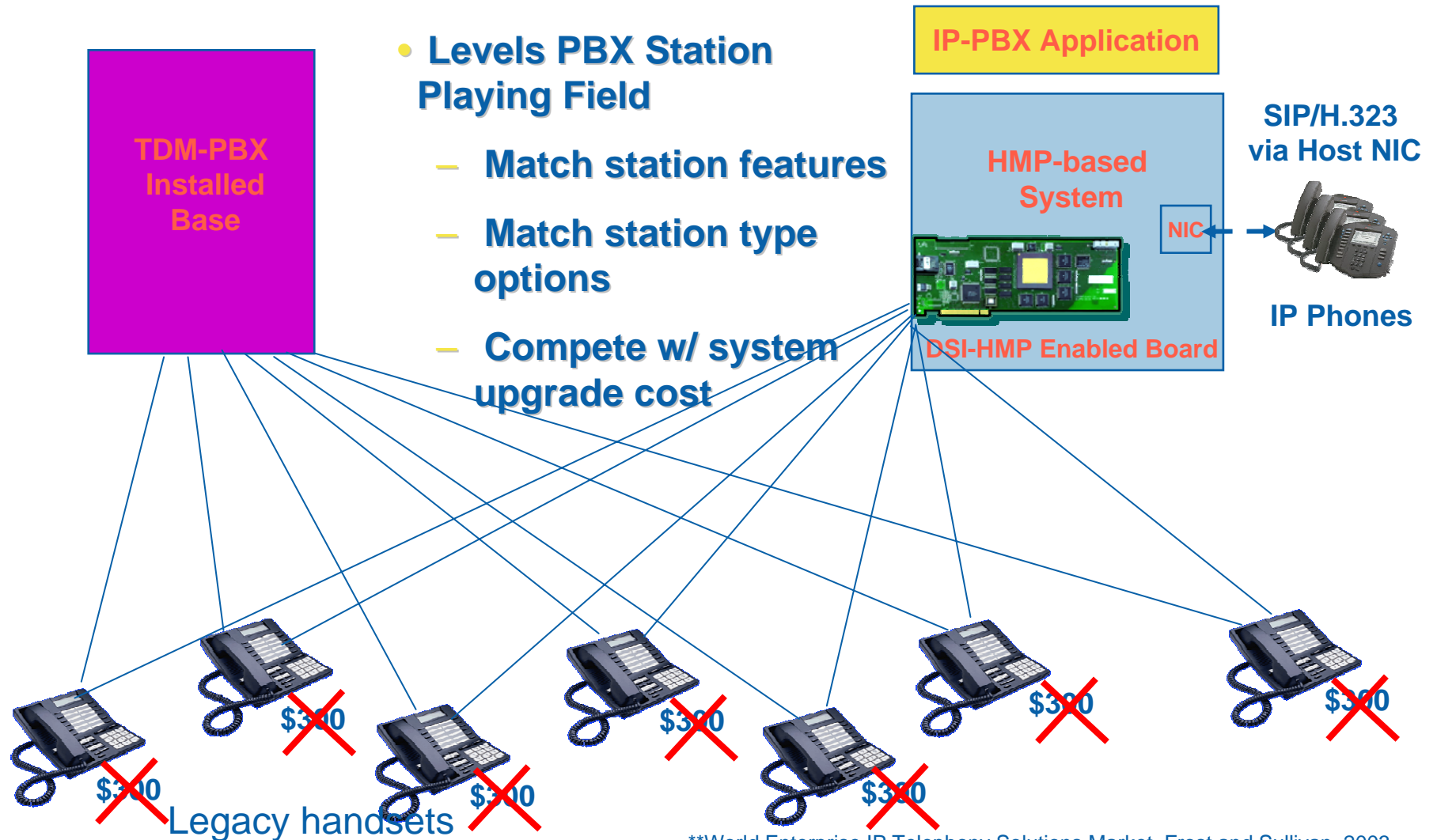
- Program multiple line appearances
- Program one-touch fixed and soft feature keys
- Control indicator LEDs and alerts
- Full LCD control

Software support

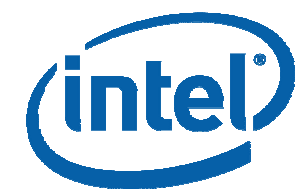
- Intel NetStructure® Host Media Processing software 2.0
 - Host streaming interface for HMP media and IP interop
 - Interoperable with T-1/E-1 HMP-enabled boards
- Media Exchange Architecture Software Release 1.0
 - SI API and drivers
 - Interoperable with **Spring Ware and DM3 boards**
 - **Installs as a third-party board with Windows* SRs**



New Advantage for Open Systems: HMP 及数字坐席卡



**World Enterprise IP Telephony Solutions Market, Frost and Sullivan, 2003



HMP 的应用

HMP 的应用

媒体服务

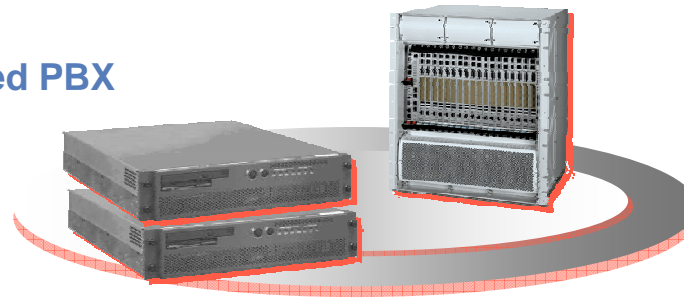
Messaging adjunct for IP-enabled PBX

IVR

Conferencing server

Video content deliver

Video messaging



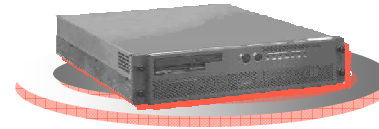
IP PBX

Switching

Integrated messaging

Conferencing

Unified messaging



Converged PBX

Media and call control

Blades for HMP (T-1/E-1 & 16-port digital station)



呼叫中心

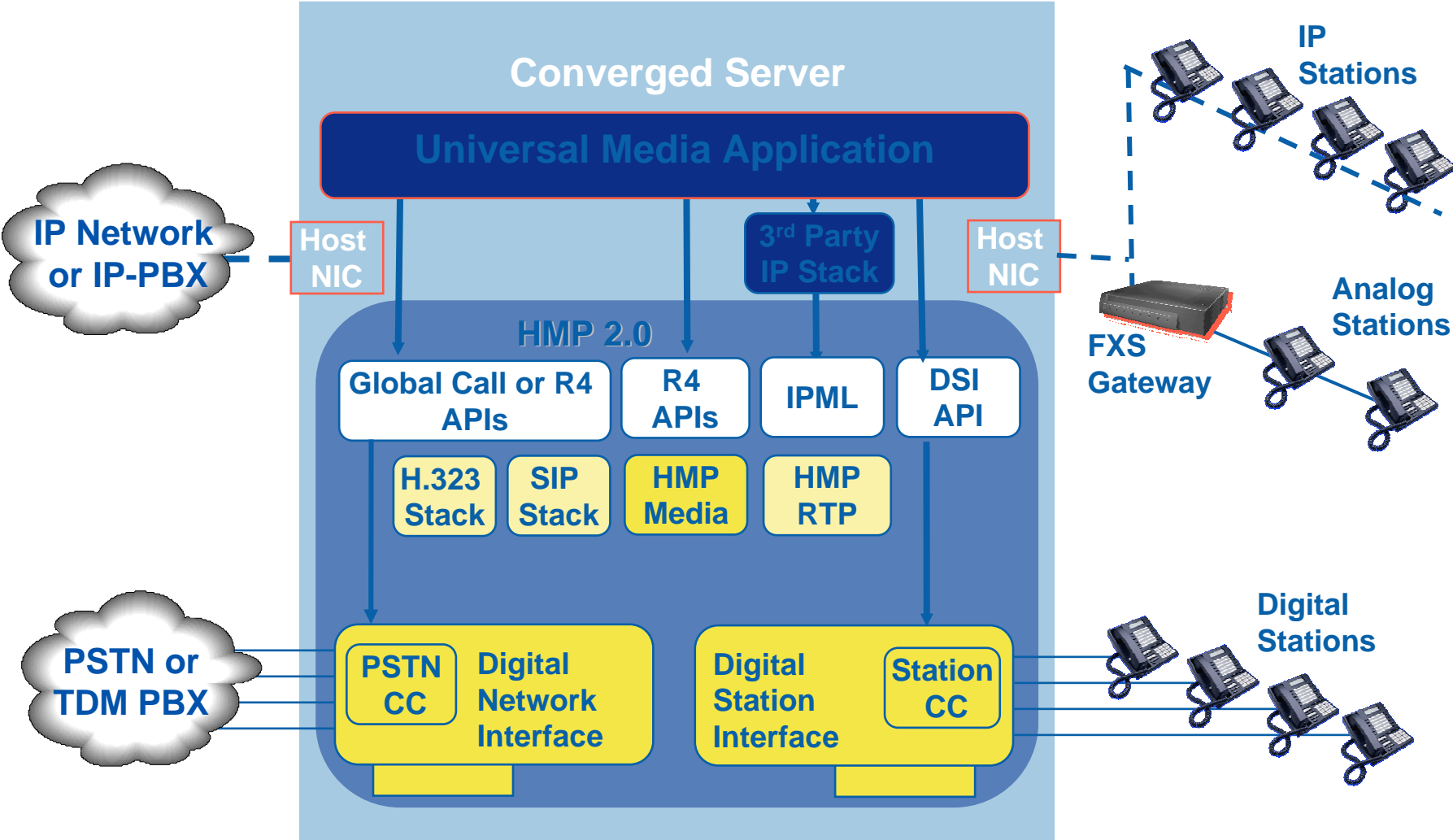
Switching

ACD

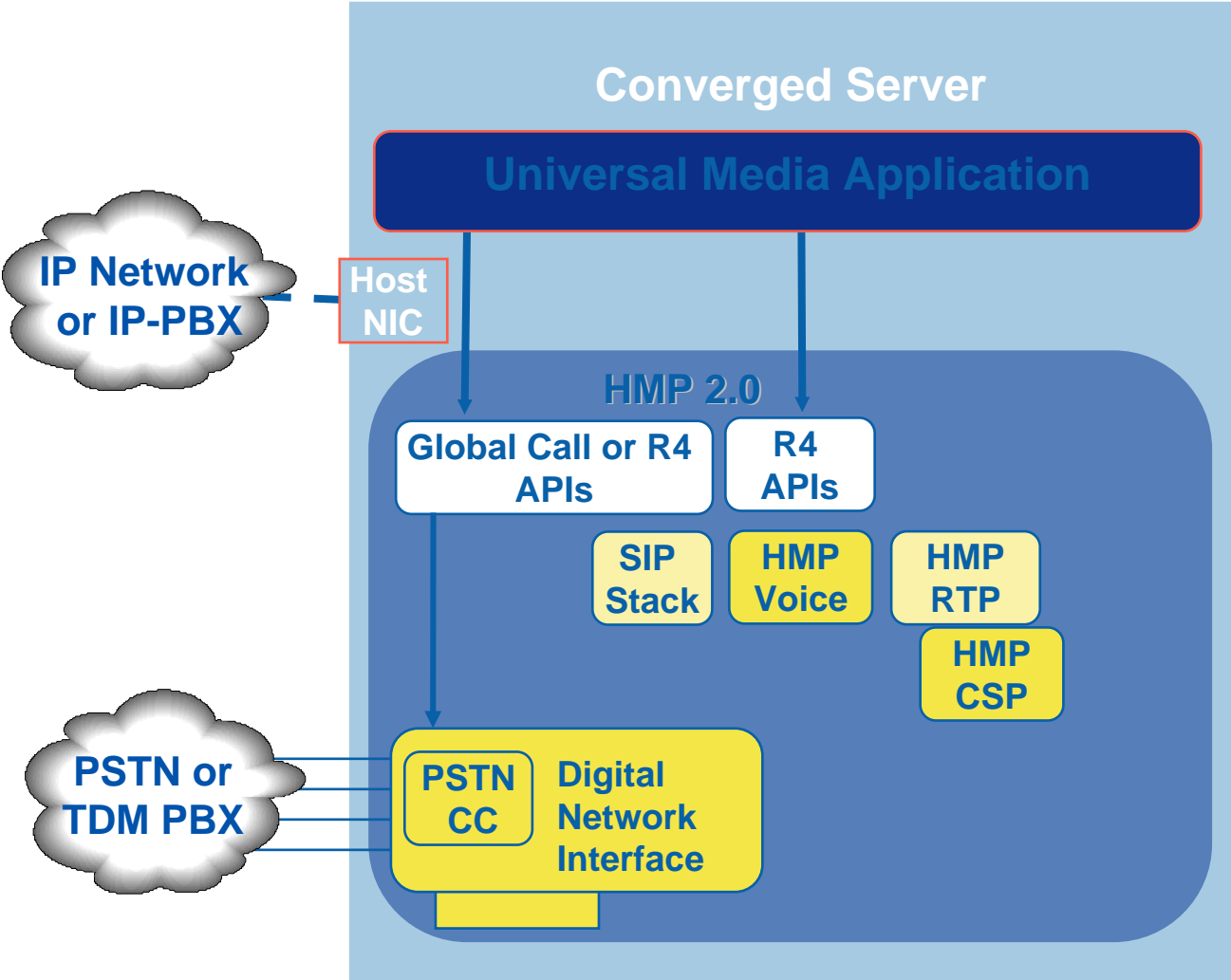
IVR

Conferencing

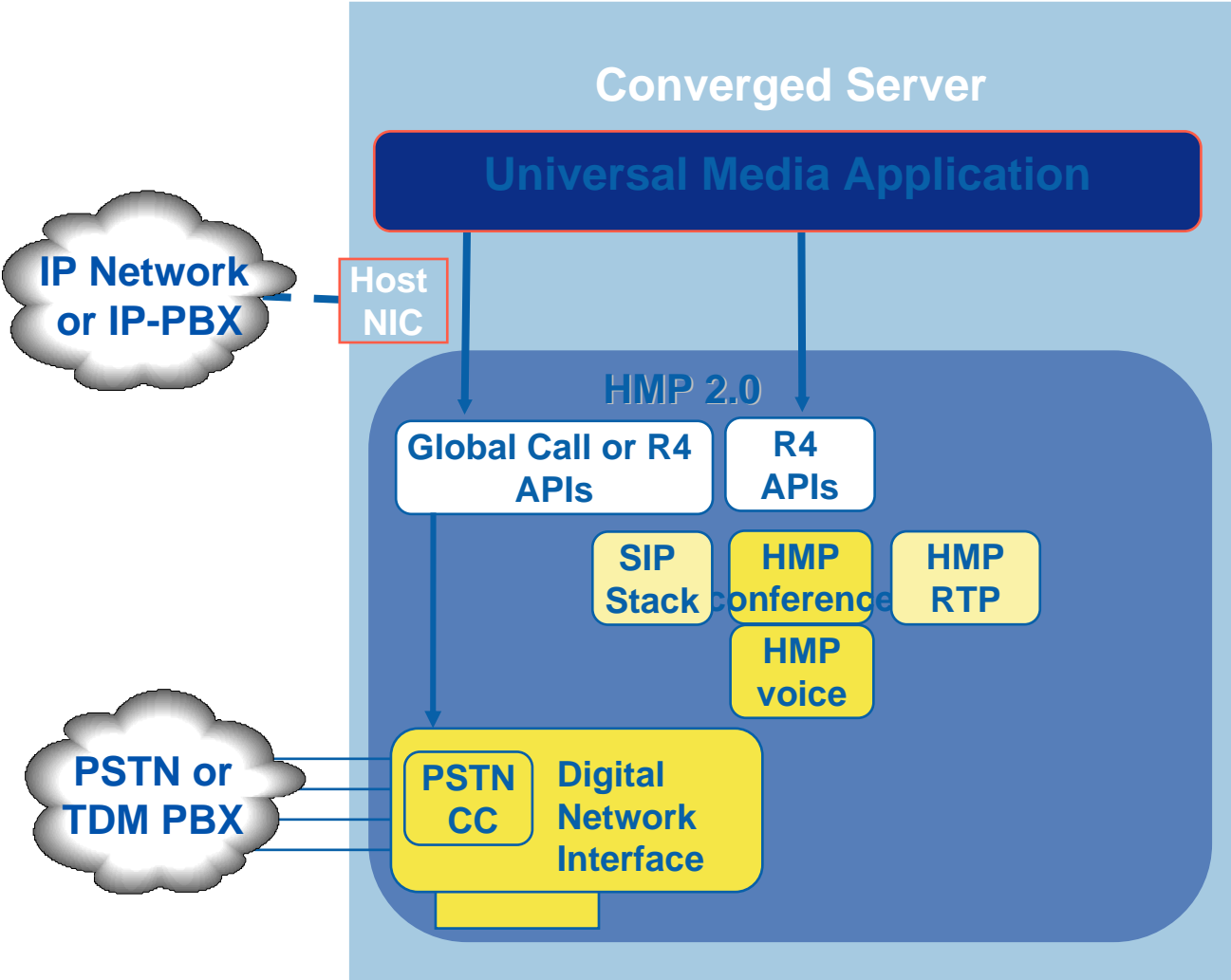
HMP 2.0 applications(应用)



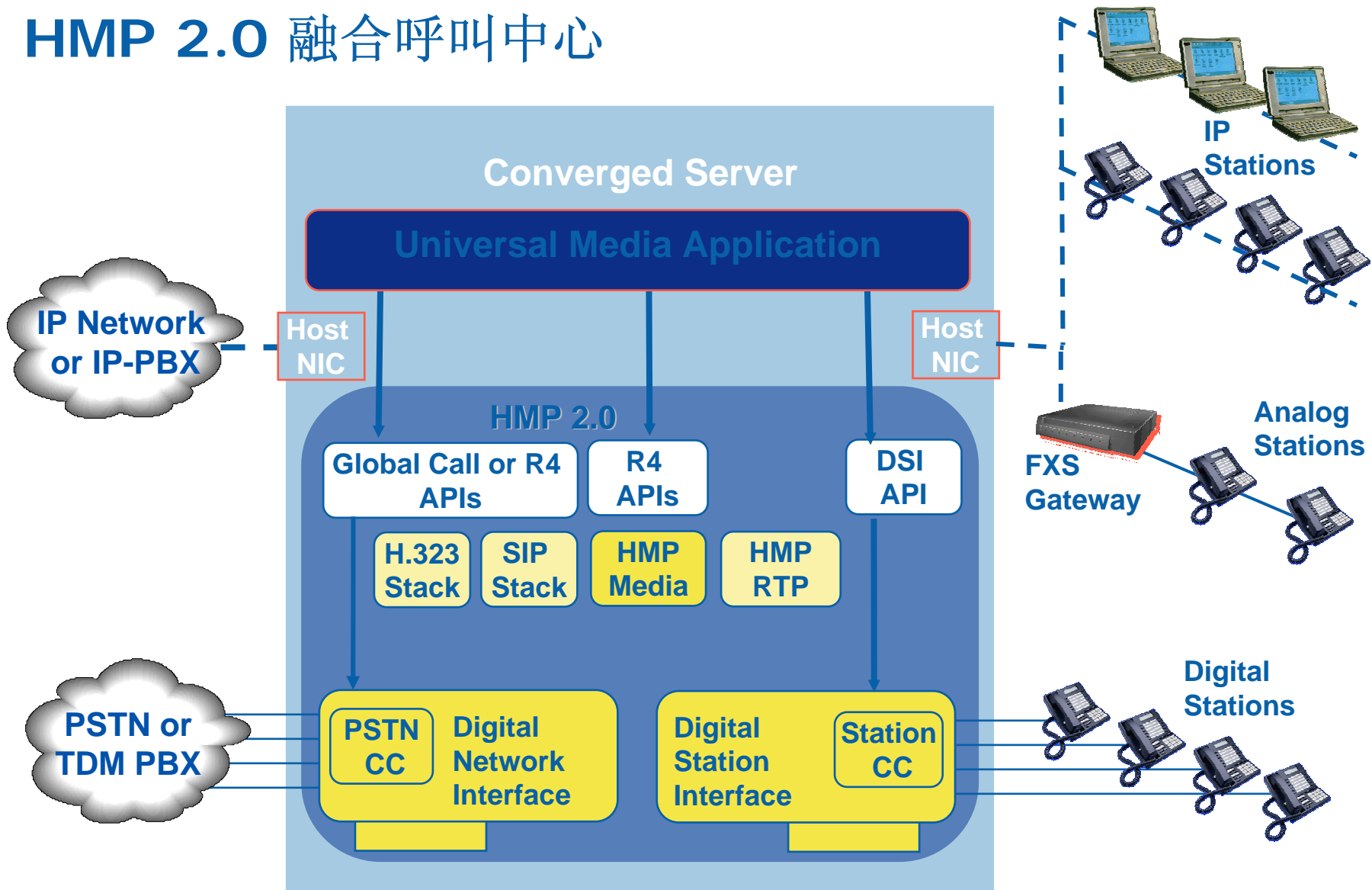
HMP 2.0 – 融合 IVR , 语音门户, 语音电话本...



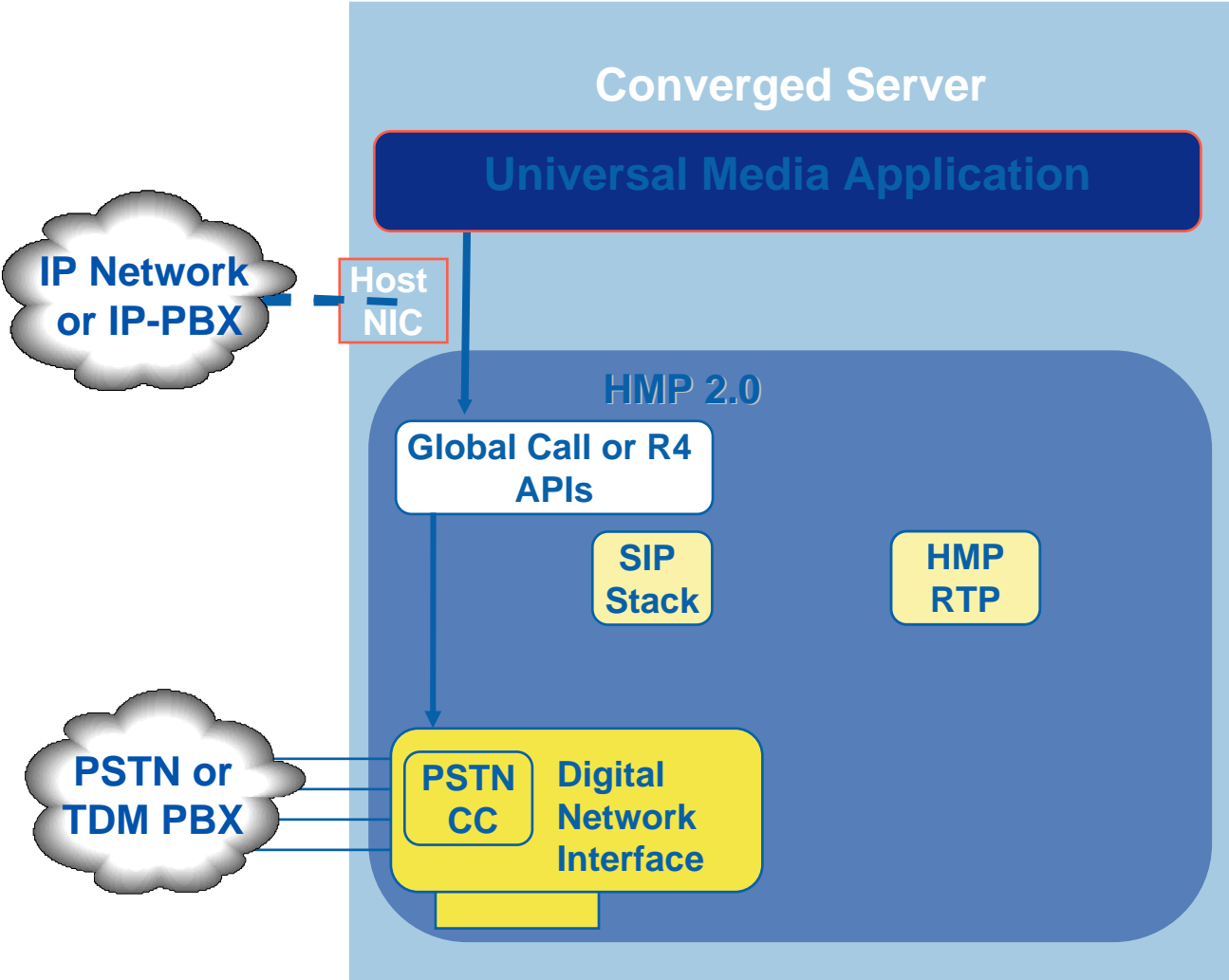
HMP 2.0 – IP/PSTN 会议, 聊天, 背景音



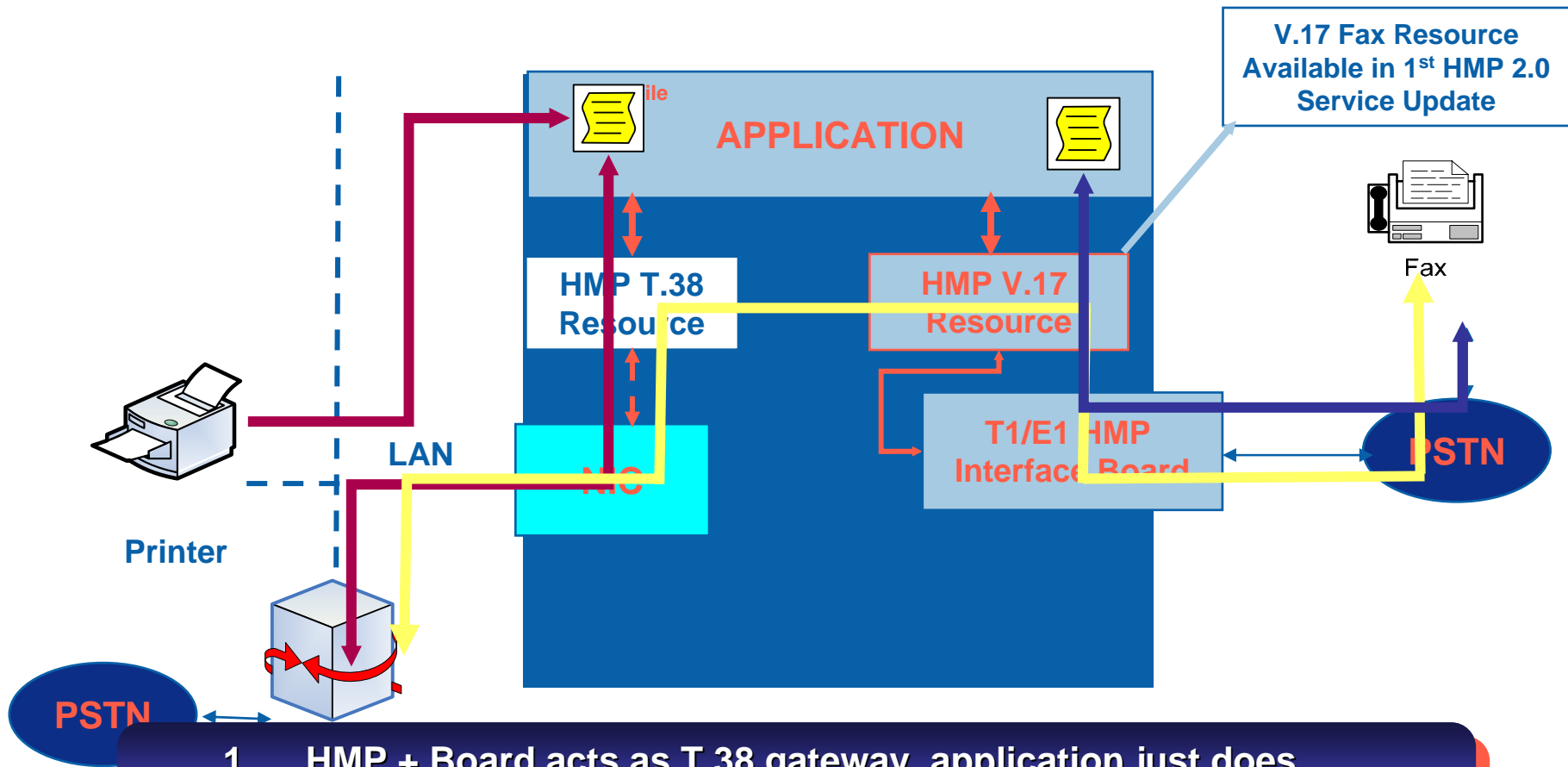
HMP 2.0 融合呼叫中心



HMP 2.0 PSTN-IP 网关



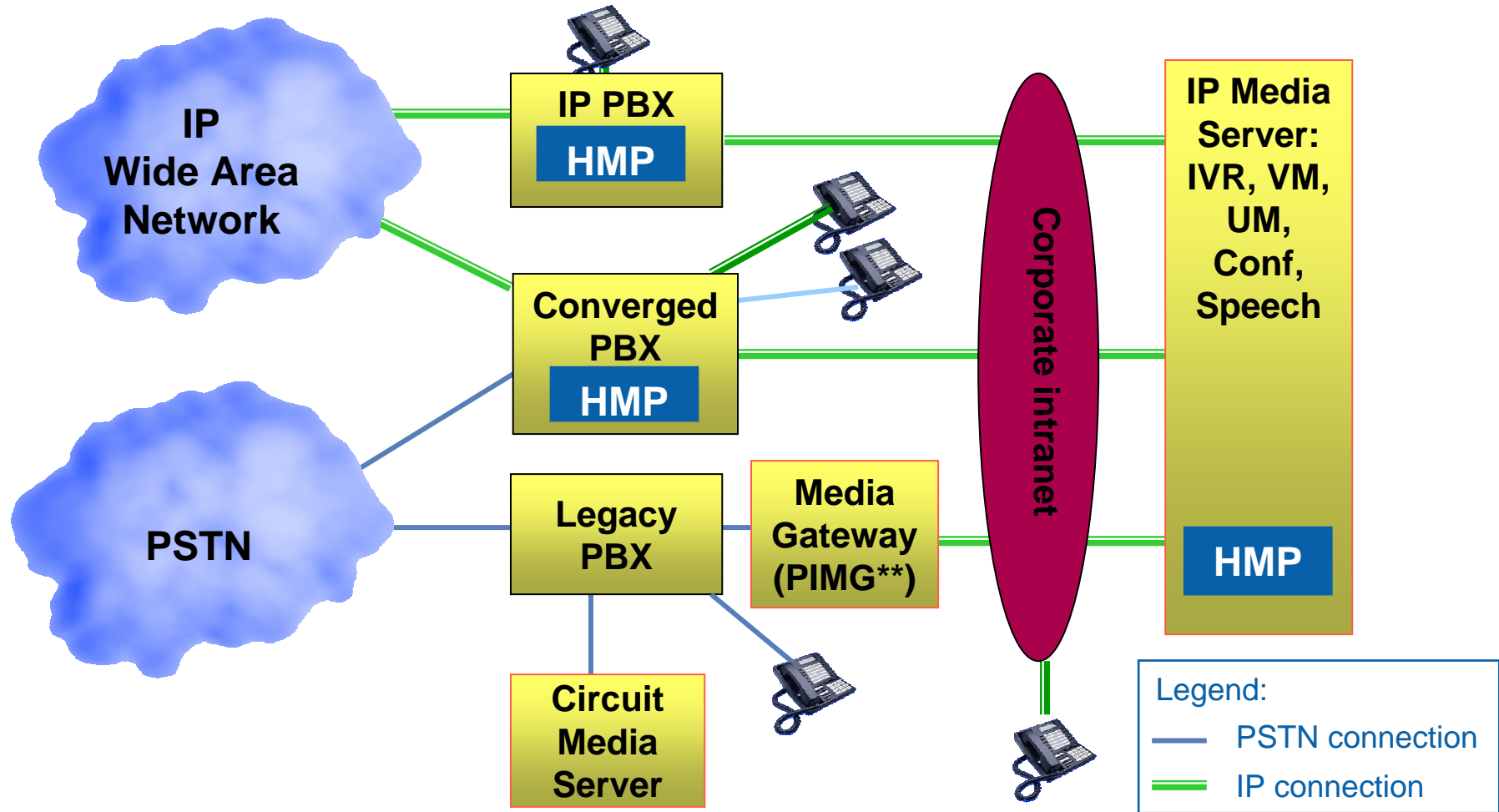
HMP 2.0 – Fax Server (传真服务)



1. HMP + Board acts as T.38 gateway, application just does setup/triggers
2. HMP sub-system automatically bridges T.38 data to TDM

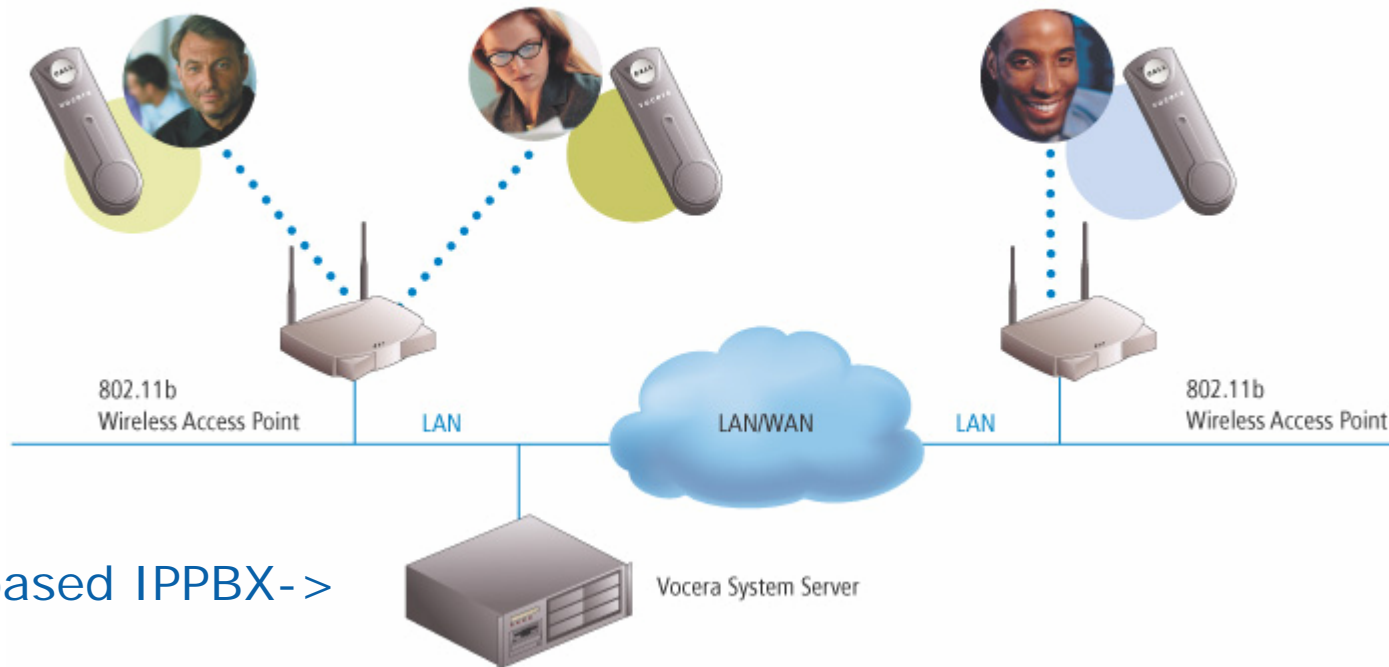


HMP应用案例 企业级融合通信

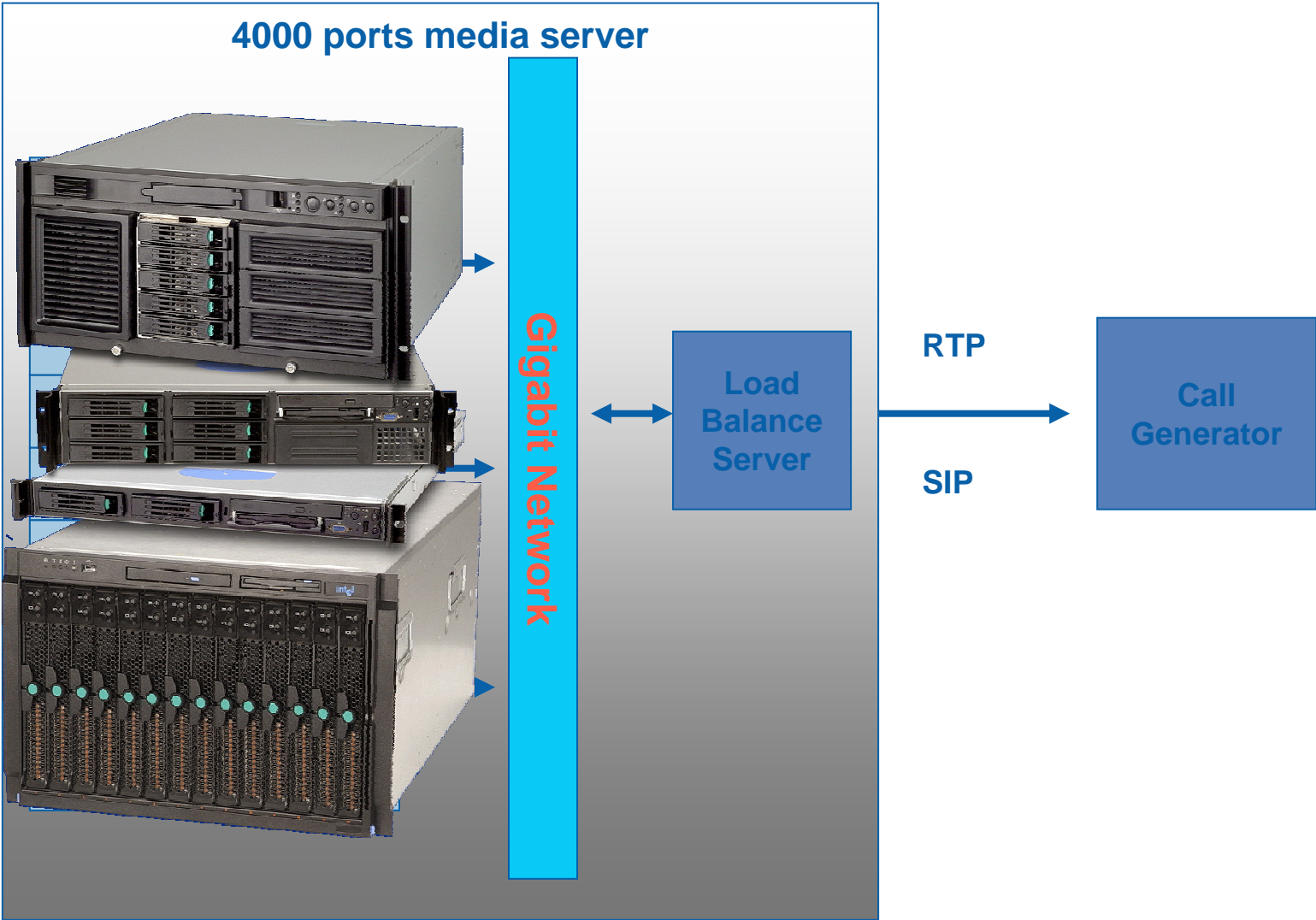


HMP应用案例 IP-PBX(HMP) + VoWiFi

Vocera Communications Network Diagram

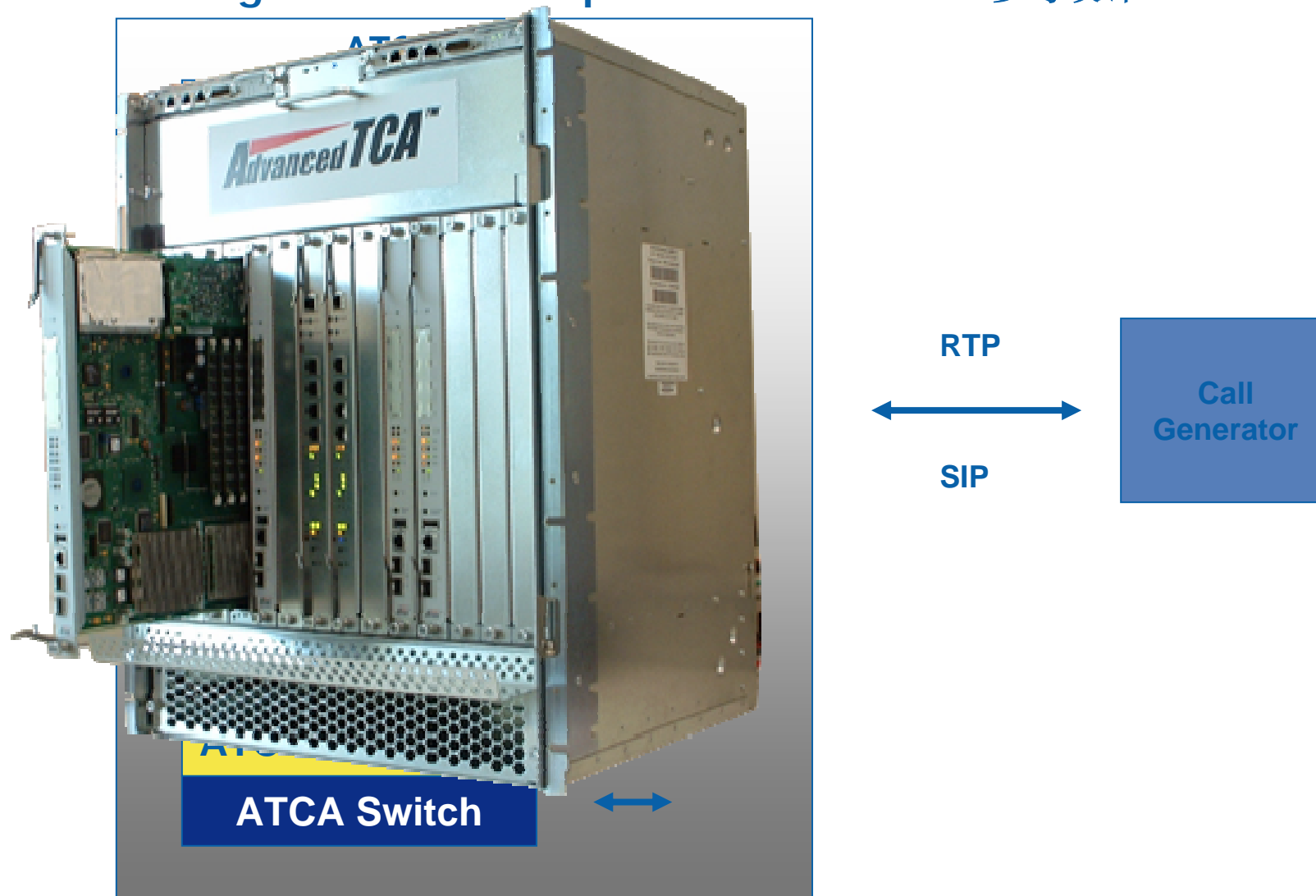


HMP应用案例-运营级媒体服务
基于Intel HMP的4000端口电信级媒体服务参考设计



HMP应用案例-运营级媒体服务

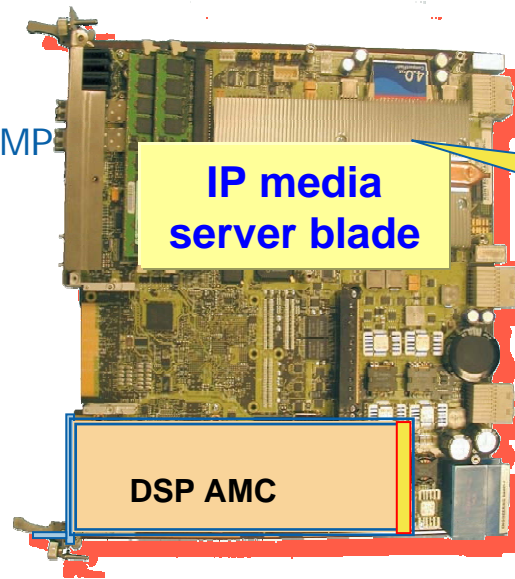
HMP running on ATCA 4000 ports Media Server 参考设计



HMP与ATCA架构的结合实现电信级媒体服务 Intel Titusville-2/Oceanville产品架构 HMP + ATCA

IP-only product:

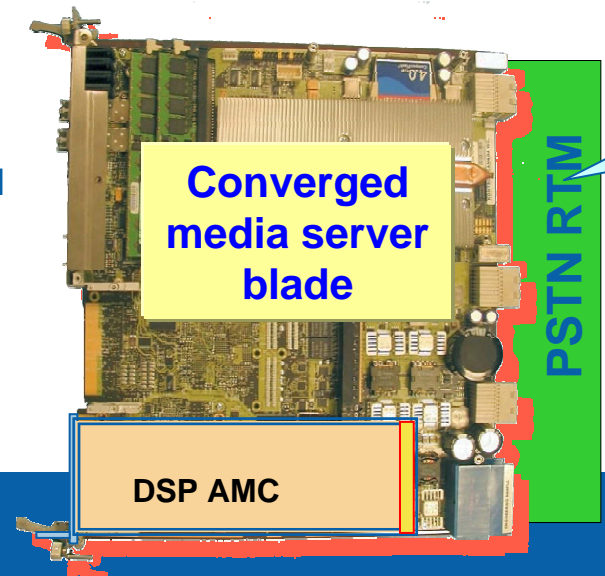
- Compute blade running HMP Linux
- Transcoding AMC



Voice & video messaging running on IA- HMP

Converged product:

- IP-only product + TDM RTM



RTM used for TDM connectivity (Clear channel)

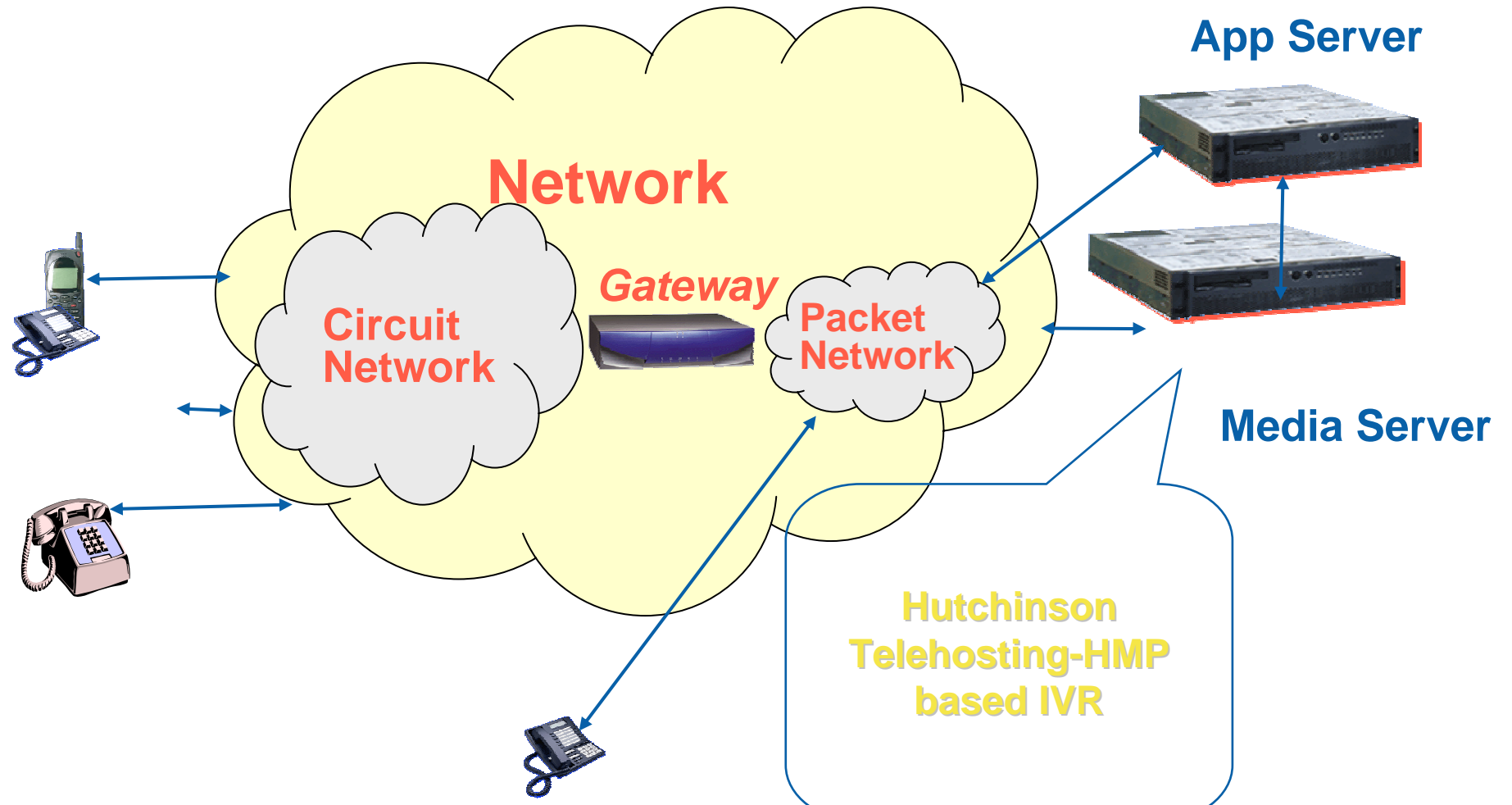
HMP应用案例

IP/PSTN-IVR IP/PSTN-Conference



HMP 应用案例

电信级服务HKJC (2000 ports HMP, scale up to 5000)



总结

HMP具有强大的媒体处理能力

HMP能满足融合通信现在和未来的需要

HMP阐明了融合通信发展的趋势

HMP是融合通信革命性的技术

INTEL致力于向融合通信提供新的标准和新的架构



促销信息

1 THIN BLADE (瘦卡) 50% OFF

2 瘦卡+HMP 价格优惠



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谢 谢 大 家

