

A TCO Analysis of Video Transcoding Solutions

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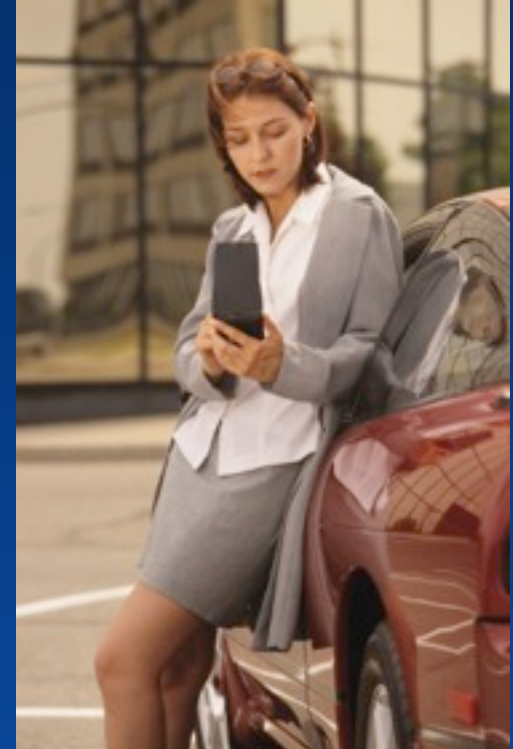
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Agenda

- **Video Service Provider Challenges**
- **Market Expectations**
- **The Players, their distinct benefits**
- **TCO Metrics**
- **1RU Appliance Solutions**
 - **Total Cost of Ownership**
 - **CAPEX / OPEX**
- **AdvancedTCA TCO Comparison**
 - **Best Practices**
- **Summary**



The Challenges

- **TV Service providers have to evaluate transcoding solutions with very diverse offerings of architectures and form factors**
- **How to evaluate:**
 - **CAPEX**
 - **OPEX**
- **Scalability**
- **Flexibility**
 - **New requirements**
 - **Evolving standards**



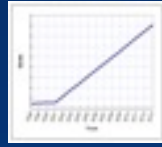
Market Expectations



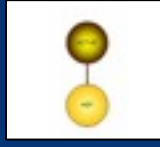
Lower power



Lower cost



Higher Channel density



Higher Availability

4K
4096x2160

Adobe
HTTP Dynamic Streaming

HEVC
H.265

Microsoft
Smooth Streaming

WebM

SVC

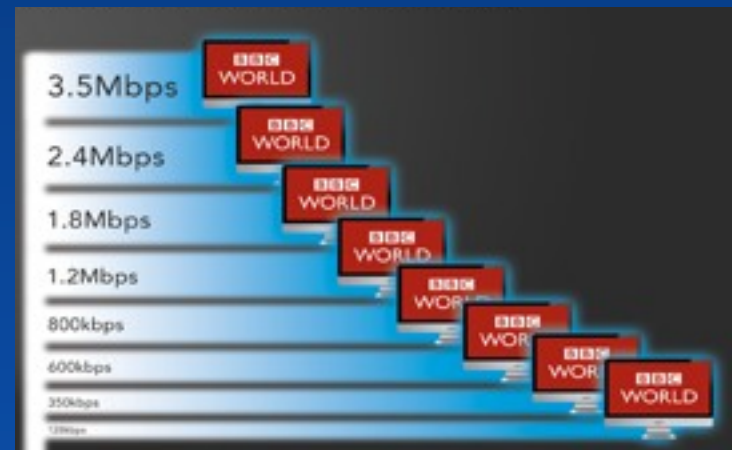
Adaptability

Apple HLS

Transcoding for Multi-Screen



Adaptive Delivery



The Players



General
Purpose CPU
Solutions (x86)

DSP- only

GPU-centric

Hybrid On-chip
GPU
Acceleration

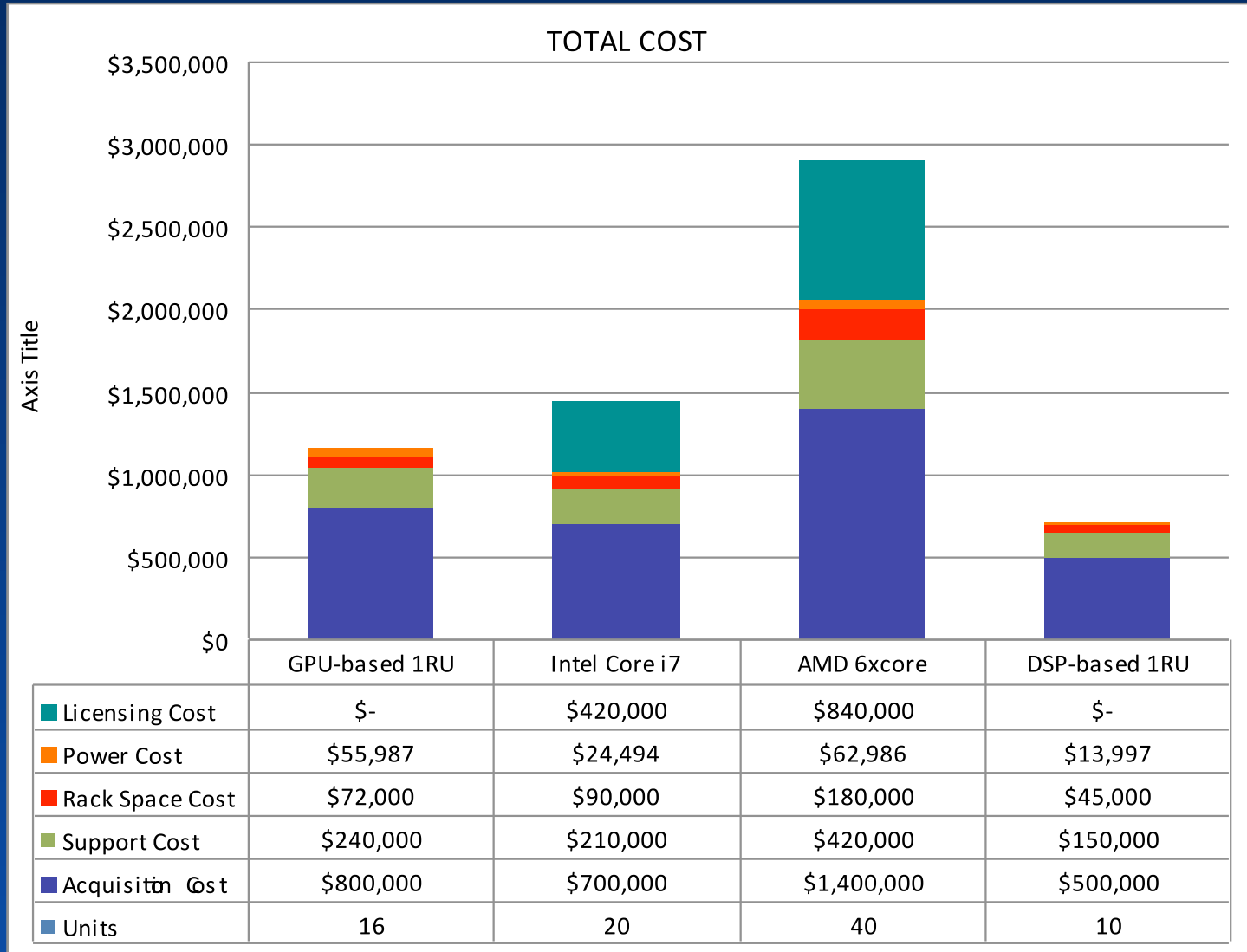
Hybrid In-
system DSP
Acceleration

The Metrics

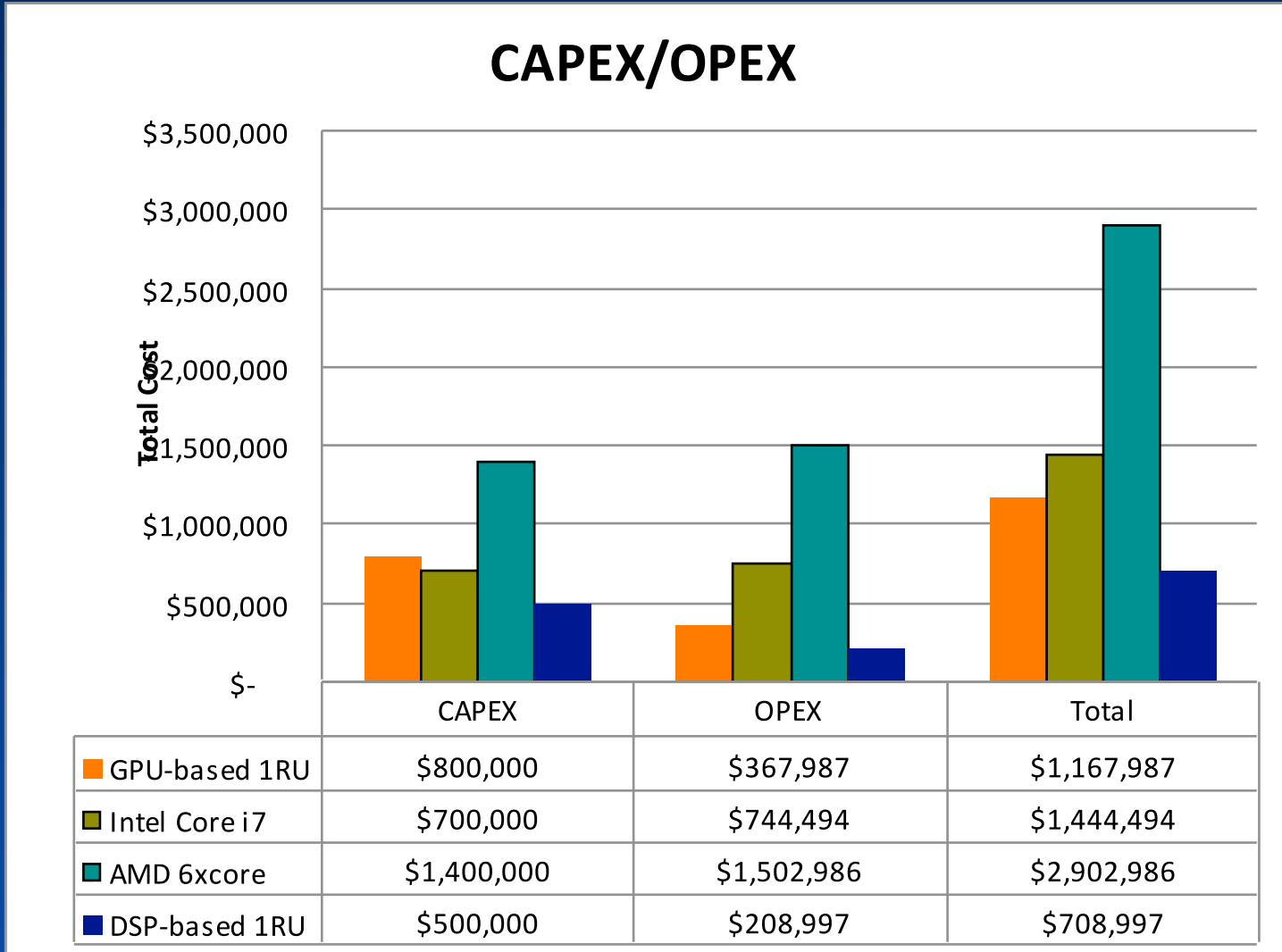
- **Reference Scenario**
 - IP-TV/WebTV, 160 Channels transcoding 1080i to 720p AVC
 - Premium broadcast quality (vs. surveillance)
 - Full transcoding (vs. motion vector sharing etc)
- **Acquisition Cost**
 - Estimated list price to Service Provider including h/w & s/w.
Number of appliances vary
- **Rack Space**
 - Assume \$1500 per year
- **Power Consumption**
 - Assume \$0.1350 per kWh



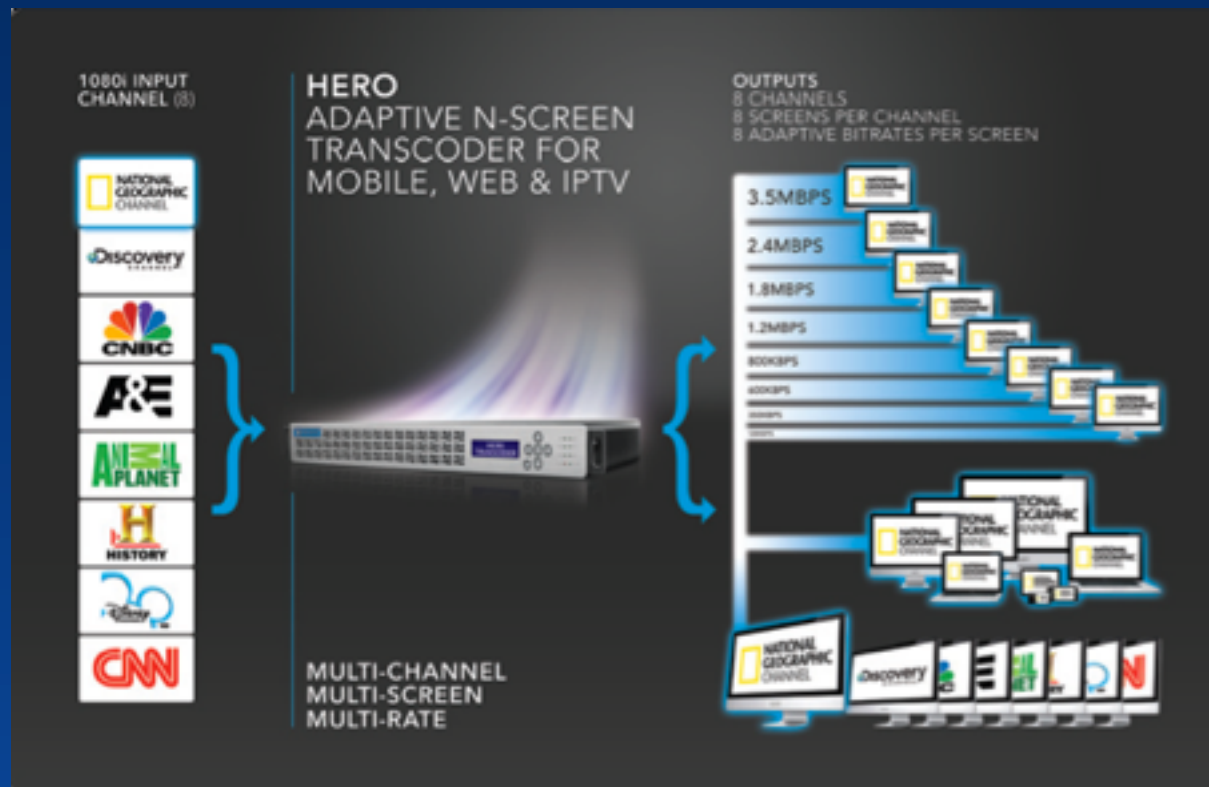
TCO Analysis for 1RU Solutions



1RU Deployment CAPEX/OPEX



Media Excel - HERO ns



KEY BENEFITS – RESPONDING TO MARKET NEEDS

- ✓ Multi-Channel: up to 16 HD Channels
- ✓ Multi-Screens: 8 Screens/Channel
- ✓ Multi-Rate: 8 Adaptive Rates/Screen
- ✓ Unified Live and File Transcoding
- ✓ DSP-based architecture, 1 RU Form Factor @ 400w

Moving to a bladed topology

- ✓ **Higher capacity stream processing**
- ✓ **Denser platform for rack space conservation and reduced power**
- ✓ **Greater density/cost benefits**
- ✓ **High-availability, NEBS ready carrier-class platform with multi-level redundancy**
- ✓ **Scalability allows controlled built-out at platform level and adaptability to service and space needs.**
- ✓ **AdvancedTCA has the widest ecosystem portfolio and is the only open architecture with provision for higher bandwidth backplanes**

Carrier Solution



14-slot ATCA Chassis

- AC or DC power
- Redundant shelf managers
- Redundant 10 GbE Switches



2 x

MIC-5322 Intel Xeon Blades

- Management & Load Balancing

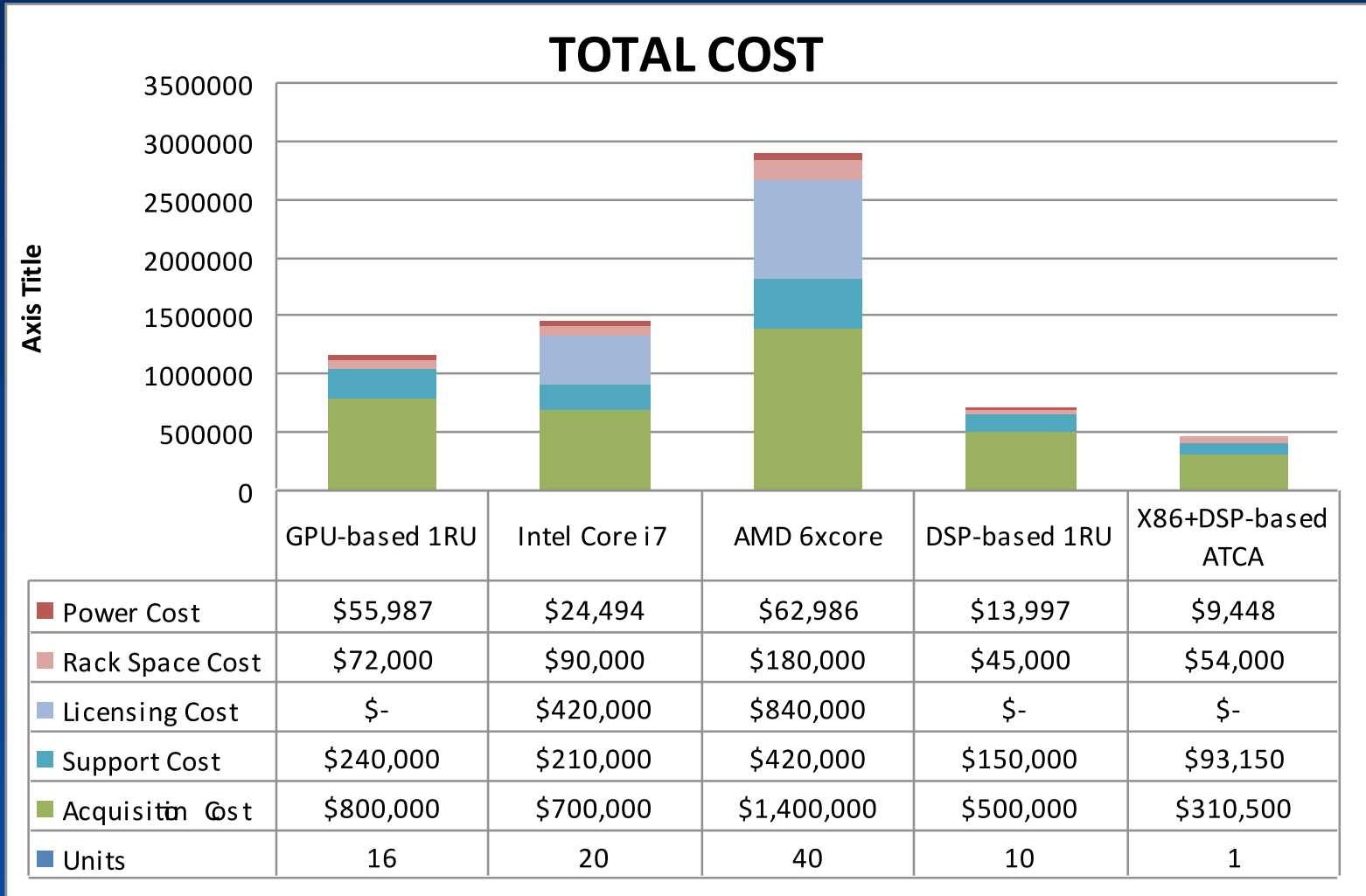


7 x

DSPC-8901E

- 20 x C6678 DSPs for Transcoding
- 25 Channels per blade

1RU Solutions compared to ATCA



Summary

- DSP provides the best price / performance / channel / density at lowest power
- Appliance level products suit installations requiring incremental build out
- ATCA provides better TCO for Dense channel transcoding requirements for deployment in Carrier Class and Data Center installations
- Multiple form factor DSP designs allows software re-use & scalability across platforms from appliances to ATCA
- ATCA provides simple system topology, operation and management
- ATCA is Carrier Class with built-in HA = OEM & Service Provider Ready and opens broader opportunities in both Carrier and Data Center Networks

Thank you for listening

Any questions ?