



The Future of P2P

A Retrospective

Eric Armstrong
President
Kontiki, Inc.

The BIG Opportunity

- › An enormous Digital Video Marketplace is Inevitable
- › We are passed the threshold where
 - Digital compression + DRM + ecommerce + last mile broadband penetration
 - ... enables mass adoption
- › On-Demand access of all popular media will eventually surpass Broadcast viewing
- › But, there are still big problems to solve ...

Put another way...

- › Existing CDN's support simultaneous viewing of a single 1.5 Nielsen rating TV show
- › "America's Got Talent" has a 7.9 rating
- › Internet is vastly under-provisioned to support mass scale

Top 10 Broadcast TV Programs for the week of July 21, 2008 (Live+SD)

Rank*	Program	Network	Rating**	Viewers***	Chart by Rating
1	AMERICA'S GOT TALENT	NBC	7.9	13.236	
2	TWO AND A HALF MEN	CBS	6.4	9.762	
3	60 MINUTES	CBS	6.3	9.517	
4	NCIS	CBS	5.9	8.524	
5	CSI: Miami	CBS	5.7	8.134	
6	CRIMINAL MINDS	CBS	5.6	8.437	
7	WIPEOUT	ABC	5.4	9.985	
8	SO YOU THINK CN DANCE-WED	FOX	5.3	8.599	
9	DATELINE SUN 9PM	NBC	5.2	7.626	
9	HOUSE-MON 9P	FOX	5.2	7.898	
9	SO YOU THINK CN DANCE-THU	FOX	5.2	8.377	

- › Founded in 2000
 - 7+ years of experience
 - Kontiki is on its 5th major software release
 - Supporting 6+ million downloads per month, and growing
- › Widely known as the industry leader in both Enterprise and Consumer Media P2P
 - *Kontiki is not a file sharing technology*
- › Core Business - Software Technology
 - Not a content aggregator
 - Not a CDN

Kontiki Customers



KONTIKI

In the Enterprise

The Coca-Cola Company

ERNST & YOUNG



WELLS FARGO



WACHOVIA

charles SCHWAB

VF Corporation

TEXTRON

Consumer Media

BBC



omn open media network

moviefone
A SERVICE OF AMERICA ONLINE

CINEQUEST



Kontiki in Consumer Media



BBC



- > #1 rated UK VOD service
- > Millions of shows watched each month
- > Hundreds of thousands of users
- > Millions of Kontiki downloads
- > Sophisticated EPG enables pre-roll of content based on preferences, etc.

SKY



- > Over 1 million users
- > Delivered more than 2 million movies to date
 - 100k per month
- > Sophisticated EPG built upon Kontiki client
- > Cross-medium service offered free to premium subscribers

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- > 1M downloads per month
- > Combination of pay per view and ad-supported content
- > Catch-up (30 days) and pre-booking of content via EPG
- > Geo-IP restricted (UK)



“P2P” Early Years

1999

 The Free Network Project



2000



Gnutella



eDonkey2000

2001



- › Most early file sharing companies solved the “access to content” problem
- › No Network Management
- › Centralized publishing and tracking were avoided
- › Delivery performance was best efforts

The Enterprise Driven Path

> Enterprise networks

- Built to manage “data” across complex networks
 - Not built for mass content delivery
- Good edge connectivity
- Under-provisioned WAN segments meant to carry RT business traffic

> Enterprise P2P deployments were driven by these requirements:

- Make efficient use of existing network and computing resources
- Self-scaling
- Track and report on all network and content consumption activities
- Protect sensitive content
- Guarantee a high quality of service, but not at the expense of real-time traffic
- Integrate with existing enterprise information & directory services
- [This should look familiar to those of you in consumer media P2P]

The Fundamental Difference

- › Enterprise requirements vastly more sophisticated requirements than consumer P2P file sharing systems
 - Kontiki solved these
- › Another fundamental difference is that enterprise P2P systems have robust Delivery Management:
 - Centralized Configuration and Control
 - Network and location specific rules set by the central administrator to determine peer behavior
 - Distributed Dynamic Adaptation
 - The peering network adapting to the changing conditions of the network in a predictable way

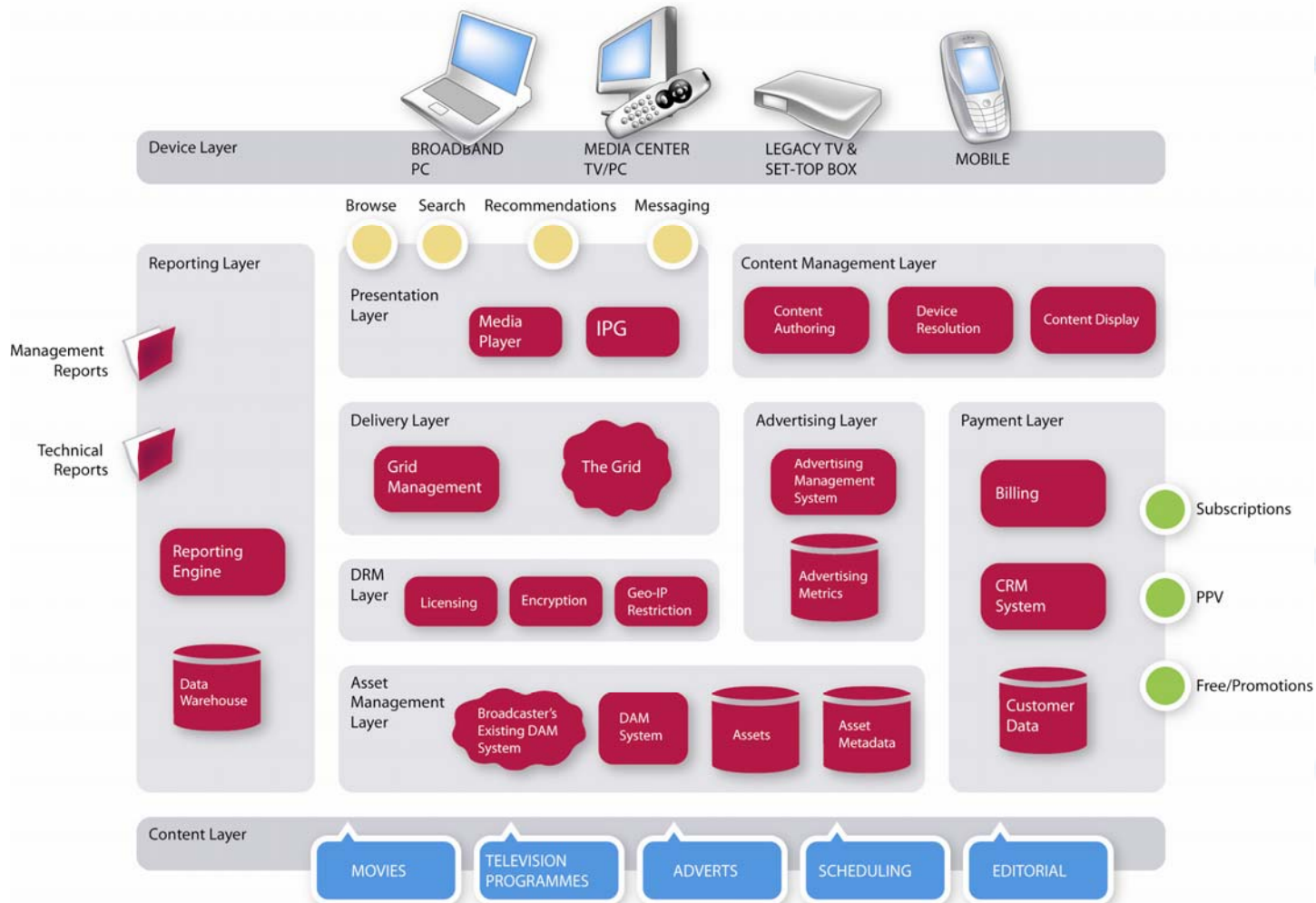
Converging Requirements

- › Consumer media requirements have now morphed to look very similar to the needs of the enterprise
 - It is a “WAN” problem more than a “LAN” problem
 - Need to be able to manage traffic flow by locale, by ISP, by content type and even by “customer type”
 - Configurable and Dynamic
 - Manageability, Security, Reporting are critical

The Way Forward

- › The joint challenges of Content Owners, Network Owners and Consumers look familiar
 - Match those of Enterprise market, that we have uniquely solved
- › DCIA & The P4P Working Group have the right priorities
- › Good news for the future of the market
- › We know how these systems need to work
 - Kontiki has solved the hard problems
 - We are proven in the market
 - Consumer media landscape looks very familiar to us
 - Kontiki is playing a leading role in these initiatives
- › Contact me anytime – earmstrong@kontiki.com

P2P just one piece of the puzzle...





KONTIKI

Q&A