

<tru2way>™ guide

An Introduction to the Tru2way Platform

What Is tru2way?

What It Enables

What's In It For You

A tru2way Applications Gallery

Q&As with CTAM tru2way Committee Co-Chairs:

Naish Patel, Comcast

Patrick Donoghue, Cablevision Systems

Additional Resources

TSBroadcaster delivers tru2way content



www.s-and-t.com

[<tru2way>](#)

TSBroadcaster is available through both Motorola and Scientific Atlanta in conjunction with OCAP systems.

US Representation:

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S&T's TSBroadcaster® is the leading system for delivery of tru2way applications and data. Now deployed in live commercial operation throughout the USA, TSBroadcaster has all you need to schedule and deploy Java and ETV applications for tru2way networks. The new TSBroadcaster2, offering improved performance, modularity and usability, is now being delivered. TSBroadcaster is equipped to suit both the development lab and live operations.

TSBroadcaster 2 is now being delivered. It is

- Scalable
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TSBroadcaster 2 supports

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- Stream Event configuration and injection
- Content delivery over ASI, Gigabit Ethernet, ADSG and legacy interfaces
- Interfaces to industry standard headend equipment

what is tru2way?

Increasingly you will hear the word “tru2way” applied to HDTV sets, attached to cable set-top boxes, deliberated by TV executives, mulled over by software developers, and bandied about in industry circles.

What does it mean? Tru2way means consumers will have a true two-way, interactive television experience. Behind the brand is technology that can be used to produce more plug-and-play cable-enabled devices, and to create and deliver new forms of interactive and On Demand television content. It's software, actually—highly important software.

Tru2way technology, formerly known as the OpenCable™ Application Platform (OCAP™), allows digital TVs and other devices to connect to cable without requiring a set-top box. Once the software (technically, it's middleware) is inside, it can be used to offer all sorts of new, interactive programming options.

It's really about making TV better by creating a one-to-one relationship with viewers. It's about giving consumers more control over the TV viewing experience. The result is that TV will be more convenient, cooler and personal so that you can do more fun things with it, like this:

- Go to a store, buy a big HDTV, and get cable television without a set-top box or a degree in engineering.
- Easily find your favorite TV show, or have the show find you.
- Use your TV remote to vote for a singing contestant who may sound bad, but looks good.
- Quickly catch up on plot points, because you can't remember in *Lost* who was in the plane crash and who is with “the others.”
- Instantly get alerted to live coverage of the latest celebrity sightings.
- Play along with a game show and feel superior to the contestants.
- See commercials for products that you actually want.
- Display your family photos on TV and realize some appear a little too clear in high-definition.
- Get a fantasy team player's latest statistics and wonder why you drafted the bum.
- See a friend's caller ID on TV and ignore the call. Text through the TV that you're busy watching a music video and then send the video to your friend's cell phone. >



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Fanciful or not, all of these things, and so much more, are technically feasible today. Cable companies are rolling out the tru2way technology platform while major set-top box and TV manufacturers are putting “tru2way inside.”

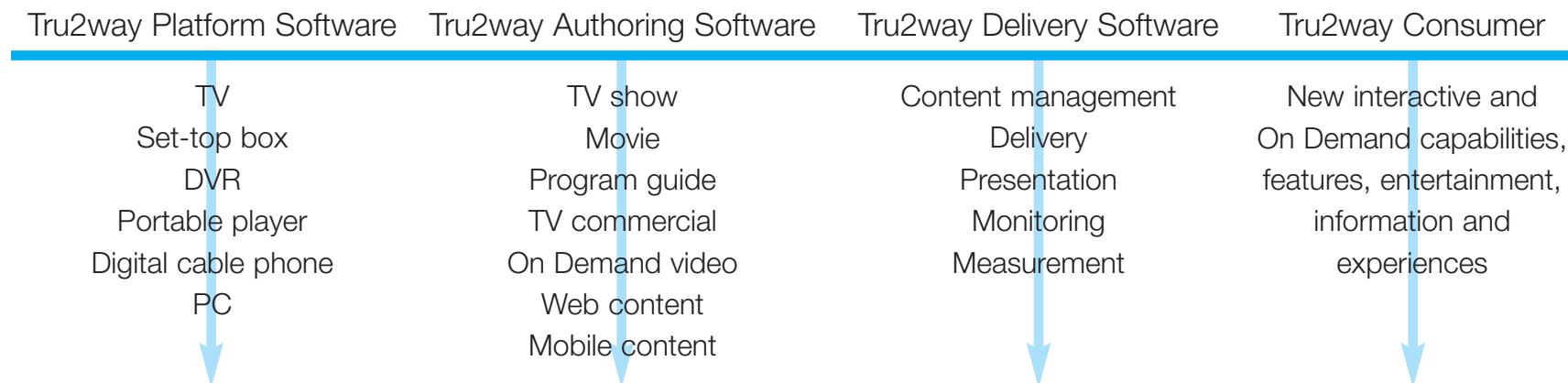
Now cable needs more TV networks, applications developers, advertisers and other content providers to come on board. The tru2way highway is being built and now it needs cars to ride on it. There are technical details, business models and consumer tastes to sort out.

As the hardware is married with great content, the benefits for everyone involved will be great. Truly great.

So what does tru2way really mean? It means new products, content, innovation and business opportunities across multiple industries. To learn more, read on.

A Recipe for Interactivity

Tru2way software addresses all of the necessary steps for distribution of interactive content, from creation to delivery.



Motorola Tru2way Solutions

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MotorolaTru2way™ solutions transform and redefine the interactive services experience. Delivering new levels of interoperability, performance and efficiency enabled by tru2way, we offer solutions like Follow MeTV™, an experience that place-shifts video, pictures and music throughout the home and to compatible mobile devices. And our new DCX Set Top Solutions, which also support tru2way, bring together high definition advanced home entertainment experiences and innovative new styling. It's just another way Motorola puts media mobility in the palm of your hand. HELLOMOTO™

To learn more about Motorola's tru2way solutions, please visit: motorola.com/tru2way

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what it enables

The tru2way platform plays two vital roles, one in hardware and one in software. Put the two together and it's a winning combination for creating new forms of digital media.

The tru2way platform is based upon a simple concept: tru2way capability goes into a device, then tru2way software is used to create cool new applications that run on the device.

The result is that TV manufacturers, consumer electronics retailers and digital device makers can offer new plug-and-play devices that run on cable's vast pipeline. And TV networks, producers, advertisers, and other content creators can engage their viewers in new ways.

Here's what tru2way technology offers on the hardware and software sides of the equation.

The Hardware Side (Devices)

The starting point for the tru2way platform is with devices that connect to cable, including set-top boxes, HDTVs, DVRs, and portable players. Tru2way technology extends the boundaries of television—or any video content viewing experience—by enabling these connected devices to carry two-way interactive features.

That means that a consumer can go into their local consumer electronics store and buy a tru2way branded set-top box or an HDTV and, when they connect it, the cable interactive program guide, On Demand menu and navigation and other two-way features will work.

The cable-connected devices also provide for content security protection, which is handled through a separable security system, currently in the form of a CableCARD™ that slides into the device.

That's also convenient, because buyers of those tru2way set tops and HDTVs can take the devices with them when they move and use another local service provider's CableCARD to hook up to cable in their new locale.

But that's just one part of the tru2way story. When placed in the hands of the many players that are involved in television, the Internet and telecommunications, tru2way technology provides a powerful launch pad for innovation across multiple distribution platforms and between multiple devices.

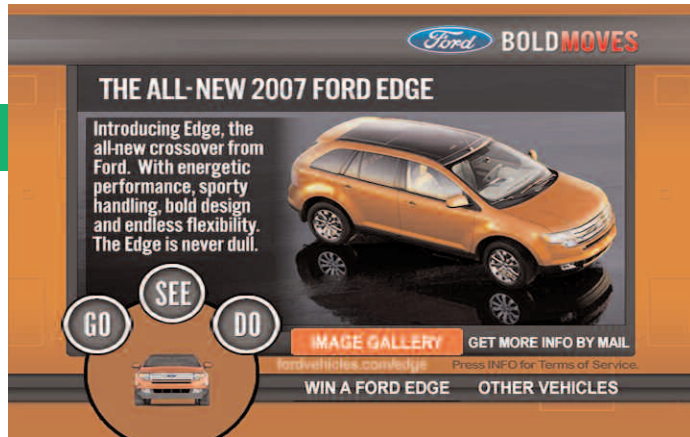
Which brings us to the software side of the equation. >



before us... it was just shopping

With interactive services such as Shop by Remote and Shopping on Demand, the first television lifestyle commerce network continues to bring innovation to the world of retail. HSN...the future of shopping is here. **For more information, contact Cara Conte, Vice President of Affiliate Sales, 727.872.5066 (Florida) or Rob Constable, Vice President of Affiliate Relations, 212.314.7324 (New York).**





Courtesy of Ensequence

The Software Side (Interactive Applications)

Interactive content is all the rage—on your computer, your game player, your mobile phone or your PDA. Everywhere, it seems, except a medium that reaches millions of homes: television.

Granted, interactive television ranks with video phones, flying cars and commercial moon trips as something that we supposedly will have in our life-

times. It's been hampered by false promises, poor economics, and proprietary technology schemes.

Actually, millions of Americans already are interacting with their TVs every day. Viewers click through interactive program guides, make On Demand selections, set their DVRs, and use cell phones to vote for *American Idol* candidates.

While the industry doesn't want to turn the TV into a PC, there's plenty of room to enhance the TV experience. Tru2way technology can be used to produce interactive content on TV in a way that makes sense for viewers and for the TV medium itself.

Applications can include point-and-click TV-remote activity, such as polling, voting, trivia, play-along game shows, and instant news, sports, traffic and weather. These applications can link, or "telescope," to On Demand video, so viewers can access past episodes, sneak previews or bonus features.

ETV: a tru2way entryway

While the tru2way platform is in an early stage of deployment, development already is taking place with enhanced TV applications (ETV).

ETV is regarded as a stepping stone toward more robust tru2way applications. ETV runs on today's digital set-top boxes and enables polling, instant weather and traffic, and other simple point-and-click features.

More important, ETV is a platform for interactive advertising on TV. Advertisers can reach a broad base of customers by using current digital set tops. Tru2way works on new boxes that have more memory and processing for graphically rich ads.

Technically, ETV is different than OCAP (the specifications behind tru2way technology) because it doesn't rely on Java coding. ETV uses a technique called EBIF (enhanced binary interchange format) that tech people tend to call "ee-biff."

Yet ETV and OCAP can coexist, so interactive ads and other applications built for ETV will also run on tru2way devices.

tru2way's true calling

Tru2way technology represents the best opportunity for interactive TV, because the software is:

- Economical – affordable; some code is free
- Standardized – based upon uniform OCAP specifications and Java software
- Open – provides open application program interfaces to which developers can write
- Available – suppliers offer software developer kits and other support
- Proven – similar Java software is used for Web, set top, mobile phone, Blu-ray DVD and other platforms
- Secure – works with separable security systems
- Scalable – developers can “write once, run anywhere”

to develop targeted, interactive and On Demand advertising.

Eventually, fuller forms of blended media—mixtures of TV interfaces, Web content and video—will provide new TV viewing experiences. As the platform extends across TVs, DVRs, portable players and anything else, it provides a larger and larger audience for developers' creations.

Other applications can be more immersive, including gaming. Applications can be “bound” to a specific TV program or “unbound” so they're free to run across multiple channels.

Viewers might even find greater love for TV commercials once the ads are interactive, allowing them to get product information that they really want. The cable industry is jointly working on advanced advertising projects



Prototype of Comcast Guide running on VividLogic Tru2way Software

vividlogic

40994 Encyclopedia Circle
Fremont, CA 94538
info@vividlogic.com
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- ✓ **Economical** - Ported to popular decoders, compliance tested and plug fested software reduces entry costs to STB and HDTV manufacturers
- ✓ **Accelerated Time to Market** - Pre-integrated and compliance tested solution on popular decoders and chipsets significantly reduces time-to-market
- ✓ **Standardized & Proven** – Open Standards based software compliance tested using latest CTP and ATP (test profiles) from CableLabs. Premium HDTV and STB manufacturers announced products based on VividLogic Tru2way™
- ✓ **Available** - Available on STB SOC (Broadcom 7401, 7400, 740x series and Sigma Design available today), HDTV SOC (AMD Xilleon 260 with Café board) and on a reference design of BOCR (Bidirectional Open Cable Receiver) that provides Cable connectivity to the PC and other devices. VividLogic's Tru2way compliant head-ends are available to customers for development & testing. Ports to future SOCs from Intel Corporation and other companies are planned.

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what's in it for me?

It's all about you, isn't it? Well, that's OK. Tru2way interactivity makes it all about you, your business and your consumer.

There are tremendous benefits for players throughout the television value chain: content creators, applications developers, TV networks, advertisers, cable companies, device makers, retailers, and, of course, consumers.

The tru2way platform is a vehicle for bringing creations, products and brands to a consumer in a way that forges a deeper one-to-one customer relationship.



- **CONTENT CREATORS** - Television producers can add interactive elements and On Demand features to enhance storytelling and build a loyal and lasting audience.
- **CONTENT OWNERS** - Movies and other content can increase in value through an enhanced relationship with viewers—and generate more On Demand and merchandising revenue.
- **APPLICATION DEVELOPERS** - Applications that have made the Web a platform for one-to-one interactions can be brought to television in a way that fits the medium.
- **TV NETWORKS** - Engaged viewers support ratings, brands and ad revenues. Networks will finally have a standardized, national and cost-effective interactive TV launch pad.
- **ADVERTISERS** - Cable's infrastructure enables advertisers to target their best customers with addressable advertising and get accurate response measurement in return.
- **CABLE COMPANIES** - New devices, interactive applications and cross-platform services add stickiness to the cable bundle.
- **DEVICE MAKERS** - Consumer electronics manufacturers and other device makers can expand their product lines for both the cable and retail markets.
- **RETAILERS** - Electronics stores will have new product lines to sell, all supported by tru2way branding and messaging.
- **CONSUMERS** - They'll enjoy a wealth of new, convenient TV program innovations, devices, enhancements and viewing experiences that satisfy their individual interests.

now open: the tru2way gallery

Though it's in an early stage of fruition, the tru2way plan isn't just theory. Applications have been developed that provide proof of concept. They offer a glimpse of what can be done and what will be.

Here is a gallery of tru2way applications developed for the U.S. cable market. Some originally were based upon ETV specifications and have been tested in an OCAP environment.

Advanced Advertising

With the Ford Edge iAd from Ensequence, Ford and Turner Media Group, viewers can "Go, See, and Do" more things, including review product photos, enter a sweepstakes, and request brochures. They can enter their mobile number to download content to their phone.

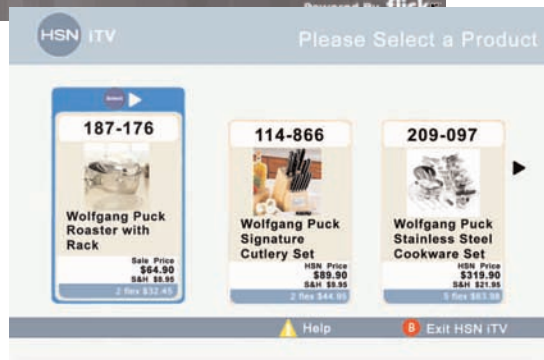


< Internet on TV

Tru2way interfaces provide a graphically rich TV framework that might even make your worst family photos look better. TVPhoto, from Zodiac Interactive, enables viewers to use Yahoo!'s Flickr photo sharing site to see photos on TV.

Mobile TV

Content is going mobile, and tru2way technology supports this trend. So if you're watching a music video on TV, you can download the video to your mobile phone or make the song your ringtone, all with MPTV (mobile products and television) from itaas.



< Home Shopping

Why run to the phone when you want to buy an item on HSN? HSN's Shop By Remote enables instant shopping with the click of a remote. In initial trials and deployments, 57% of surveyed Shop By Remote users said they prefer it to shopping by Internet or phone.

Transactions

Even eBay online auctions can be brought to the TV. eBay on TV, an application developed by Biap Systems and trialed by Time Warner Cable, enables registered eBay users to track auctions and submit bids—all in real time and from any channel.>



< Instant Weather

You don't need a weatherman to know which way the wind blows, as Bob Dylan sang. Just point and click. The Weather Channel offers its unique brand of instant local weather, alerts, five-day forecasts, weekend outlooks and travel reports.

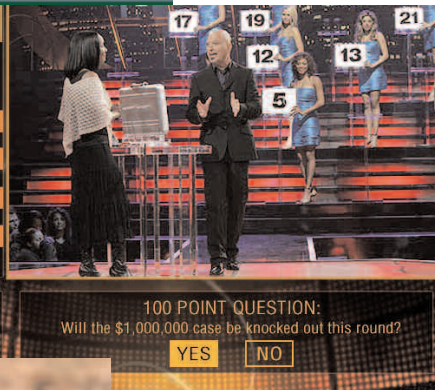


< Interactive Guides

Navigating through hundreds of channels and On Demand selections is no easy task. Cable companies and guide providers such as TV Guide Interactive are providing new graphically-rich guides to enable viewers to easily find shows, locate favorite content, and get alerts.

< Play-Along Game Shows

Which case has the million bucks? With applications like NBC's *Deal or No Deal* play-along game from Ensequence (tested on OCAP platforms and its broadcast equivalent, ACAP), viewers are fully engaged in the action.



Games

Tru2way technology provides the rich graphics for all sorts of video games, such as games from NDS, PixelPlay and others. Cable infrastructure can be used to provide multi-

player experiences. Providers can employ advertising, subscription or per-play business models.

< Premium Upgrades

Showtime Networks' application offers previews and instant ordering to generate new customers and add value for existing ones. Interactive applications can facilitate upselling, as well as bill payments and customer care through the TV.



commitment

Putting the tru2way platform into place takes commitment. Two individuals, Naish Patel, senior director, video devices product development for Comcast, and Patrick Donoghue, who recently joined Cablevision from Time Warner, are demonstrating their commitment as co-chairs of CTAM's Tru2way/iTV Committee. In these Q&As, they discuss the committee's support for tru2way devices and applications.



Naish Patel

Q. What's the advantage of having tru2way devices?

Patel: Tru2way technology is built into televisions, set-top boxes, and other devices, enabling cable companies and other interactive TV service and application developers to "write" interactive applications, such as games, once and see them run successfully on any cable system that supports the specification.

It allows developers to port new applications rather quickly, especially ones already deployed in the field that have a great revenue model, but are not on TV or other devices that can ride on cable. It is an open platform, open for innovation and open for business in leased and retail environments. Tru2way offers the consumer a whole new way to watch—and interact—with their TV programming. And it gives the cable operator new ways to build relationships with their customers. Consumers are liberated from set-top boxes and complex wiring in their entertainment centers.

The tru2way platform provides the best way to get two-way devices into the hands of consumers, while also giving them access to the full suite of services they want and expect from cable.

Q. Does cable need to work with CE manufacturers to promote the tru2way brand?

Patel: Yes. With tru2way, we need to show that consumers can do

a lot of cool stuff. Initially we'll have an enhanced VOD/PPV guide and a few simple interactive applications. This is just the beginning. As far as retail, the challenge is: How does a consumer benefit from this and what is the price point? We continue to work closely with CE manufacturers to create the most value for consumers.

Q. What's the latest progress with Comcast?

Patel: Our infrastructure readiness is well underway now and we expect to begin testing with tru2way-capable leased set tops and tru2way-capable televisions from our key partners in several DMAs this year. For retail television, our goal is to execute successful technical and operational trials with retailers and CE partners, and ramp up manufacturing production lines so TVs will show up on retail store shelves in the fall 2008 timeframe. We're also working on how to simply explain to a consumer the short- and long-term advantages of a tru2way TV vs. a non-tru2way TV.

Q. What is the tru2way committee's role in this?

Patel: We can leverage CTAM and its On Demand Consortium to help drive awareness and the brand, with a consistent message. We also want to understand the consumer value proposition and what the best consumer experience will ultimately be. The committee representation is very diverse, across MSOs, programmers and suppliers, which provides rich insight from many perspectives. We are also working with industry organizations like CableLabs on other tru2way initiatives, so that we're all in sync on our approach and objectives. >



Patrick Donoghue

Q. You've seen a lot of interactive TV projects rise and fall. What's different about the tru2way effort?

Donoghue: It's the potential for it to be widely deployed. Over the years we've dabbled with all sorts of efforts but there's never been a significant enough footprint and a cost-effective, standards-based way to deploy.

With tru2way, the price is right and the number of potential homes passed is right, so then it starts to be viable in terms of being cost effective to produce. And it's easier to monetize.

Q. What are the key benefits of the tru2way platform?

Donoghue: Open standards are critical. It opens the playing field to any number of tools vendors and any number of people who might build applications.

It gives us the ability to put jobs out to bid, and seed the market and build a real ecosystem of developers. That keeps costs down and it sparks innovation. Some of the great ideas come from these little shops, guys out of college or overseas.

Q. What progress is Time Warner Cable making?

Donoghue: Any new box we're putting out in the field is OCAP ready. We've put out our OCAP Digital Navigator. It's the whole guide experience built as an interactive application. So we're focusing on the core—the guide and then ETV as a way to enable other types of experiences.

Q. What types of applications would you like to see develop?

Donoghue: Whether it's an advertising application or something that's ad supported or ad driven, that's key.

I've always been a big believer in gaming and I think there are interesting opportunities with ad-supported or subscription gaming, or however you want to monetize it.

If you look historically, you see that news, weather and sports—any information, convenience-based applications—always have done well. Those types of applications are a natural for interactive television and tru2way.

Q. The industry is exploring advanced advertising and looking at ETV as an entry point. How will that help advertisers?

Donoghue: With ETV, the power is reach. It's getting into millions of homes across the country with a simple, open standard technology. ETV is really a perfect fit to enable interactive advertising.

Q. What's needed to make tru2way fully succeed?

Donoghue: Deployment. We've got great people at all the MSOs working on it. There's an incredible amount of interest and focus. Now it's just a question of how quickly we can deploy it.

My prediction is that once the cable industry shows success with a fairly significant deployment of homes, the networks and other content providers will be very aggressively looking for the opportunity to use interactive content in stand-alone applications or enhancements to their linear broadcast.

Q. What is the tru2way committee's role in all this?

Donoghue: We're trying to standardize the language about what ETV is, both to customers and to end users, and also internally.

How do we establish a common language and vernacular? Is it different than tru2way? Does it need to be split out and differentiated? My feeling is that it does, because they're different enough. So we're trying to come up with a common way to communicate all of the benefits.

go forth and create

Here are additional industry resources for you to learn about and participate in tru2way development. Many suppliers also offer developer programs, training and other support (www.ctam.com/tru2way).

> Information Sites

The tru2way Guide – www.ctam.com/tru2way

CableLabs OpenCable site – www.opencable.com

National Cable & Telecommunications Association – www.ncta.com

Society of Cable Telecommunications Engineers – www.scte.org

> Developer Forums

OpenCable Platform Developer Community on Java.net – <https://opencable.dev.java.net/>

OEDN: OCAP/EBIF Developer Network – www.oedn.com

> Tru2way Brand Guidelines

Tru2way – www.tru2way.com

> CTAM tru2way Committee Contacts

Angie Britt, CTAM – 703-549-4200, angie@ctam.com

Sharon Radziewski – 703-549-4200, sharon@ctam.com

CTAM HOW CABLE GROWS

Produced by the Cable & Telecommunications Association for Marketing

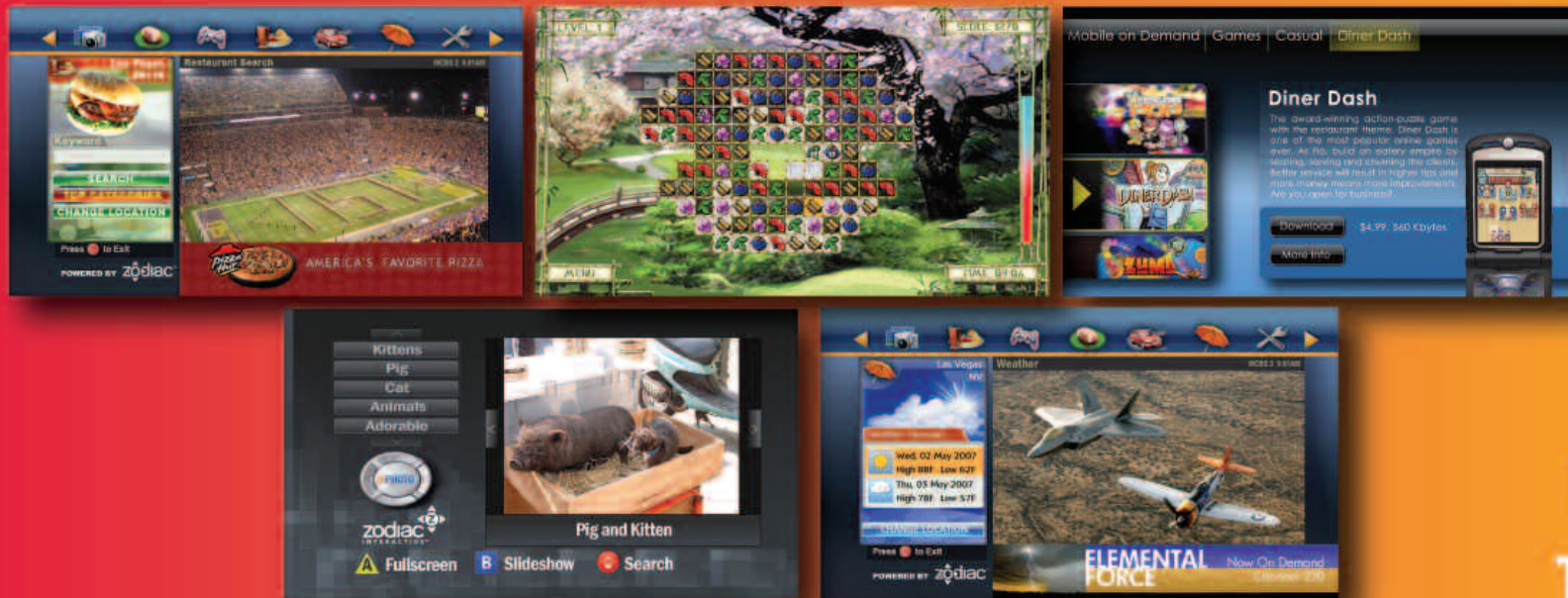
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