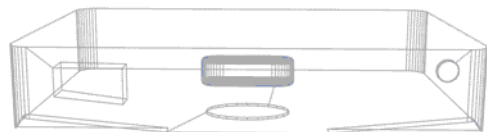




set top box farm: test facility

Date: 7th March 2003
Version: 2.0





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Two Way TV Solutions

Two Way TV provides broadcasters, networks and developers with the widest range of interactive and enhanced TV products and services available. Whether it's creating a brand new interactive concept or broadcasting a 24-hour schedule of eTV programming.

The complete iTV business solution

Two Way TV's breadth of skills and expertise, unmatched in the industry, are ready for any broadcaster or network looking for complete design-build-operate solutions, customised to exacting requirements.

Data broadcast facilities

Our technical base in West London has the best iTV infrastructure outside of the digital TV networks themselves. Developers and broadcasters can access a complete rehearsal environment, including the set-top box farm described here and a live data broadcast facility for UK satellite and cable.

Creative and design

Our BAFTA-nominated creative team includes some of the most experienced interactive television talent in the world, ready to give your TV format the best interactive treatment available.

Application development

OpenTV, Liberate, MicrosoftTV, Mediahighway, MHP, Wink ... whatever the middleware we can custom-build applications from scratch. Combined with our rigorous quality assurance testing processes, in a near live rehearsal environment, we ensure you meet your on-air deadlines.

Enhanced television technology

Two Way TV's cutting-edge Ark technologies provide a single cross-platform system for authoring, broadcasting and monetising enhanced television applications. Our patented multiple handset technology takes interactivity even further.

Interactive formats ready to roll

Our portfolio of over 100 games and eTV formats designed and copyrighted for television offers tried-and-tested interactive formats off-the-shelf.



Sky digital set top box farm

The Two Way TV Sky digital set-top-box farm has been built to support the delivery of applications on the OpenTV platform. Only by rigorously testing your application on all STB's in the field can a content provider be truly ready for SSSL.

Two Way TV's need to meticulously test its own applications in adherent to Sky's strict guidelines and criteria, created an environment to allow for multiple STB's to be tested in parallel. This coupled with our expertise built up from over a decade in the interactive television industry ensures that the Two Way TV set top box farm facility truly is first class. Previous clients to benefit from using the Two Way TV's set box farm include FlexTech, Sony GoPlayTV, BBC, Channel 4, SKY Sports & ITV.

Facility overview: set top boxes

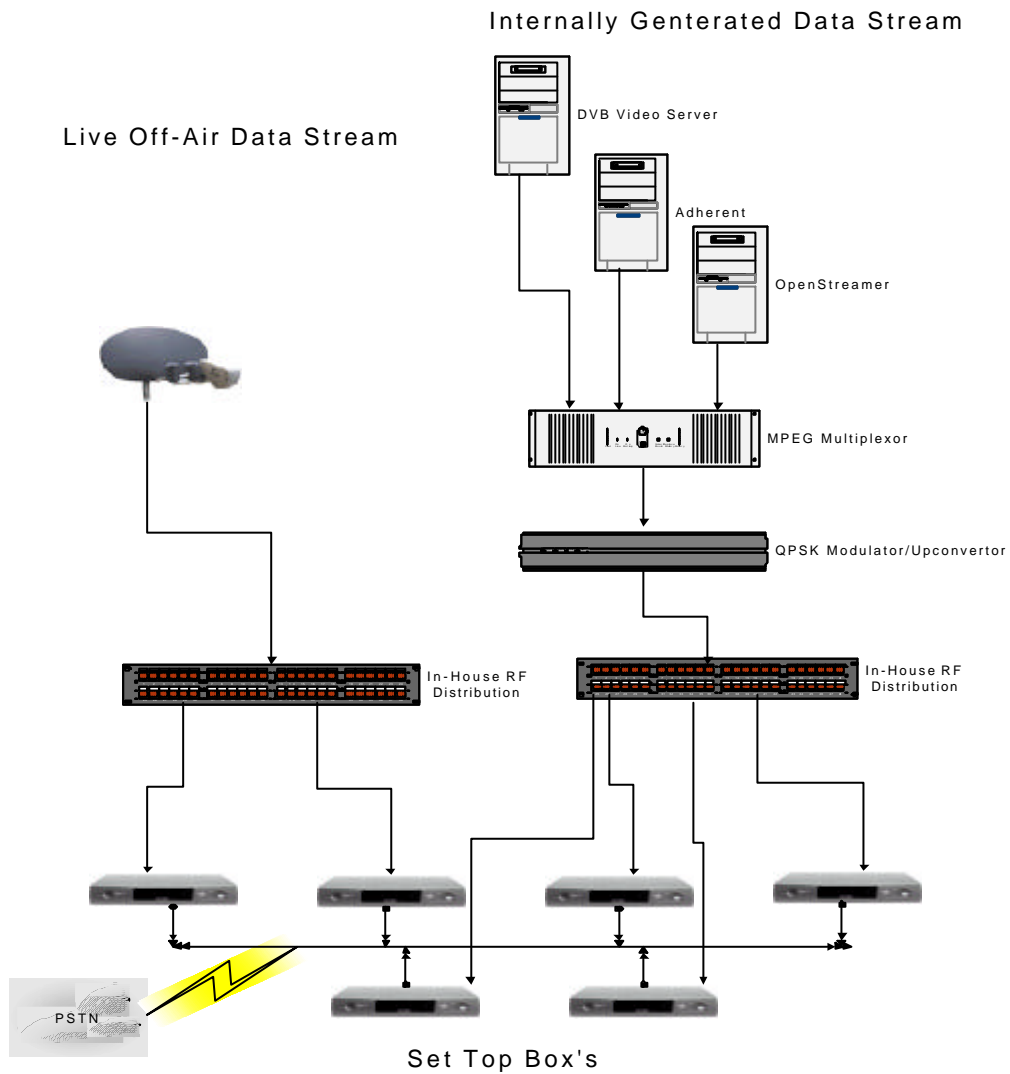
Two Way TV's set top box farm boasts a full compliment of UK digital satellite STB's deployed in the UK and mirrors those tested against at SSSL.

The following table details the Two Way TV compliment of STBs, signifying the true range of testing available. Both the boxes themselves and the range available are constantly updated. Two Way TV works closely with Sky to ensure that our facility always reflects the Sky network and the SSSL farm.

Manufacturer	STB Type	STB ID	STB Model
Pace	TP2	9F01	1.3.8
Pace	TP3	9F02	1.3.8
Pace	TP3 B1	9F03	1.3 Z 8
Pace	EMMA	9F04	2.1.7
Pace	5512	9F05	1.2.10
Pace	SABRE	9F06	1.2.10
Pace	COLT	9F07	1.2.10
Pace	RAPIER	9F08	1.0.46
Pace	JAVELIN	9F09	1.2.10
Pace	SKY PLUS	9F20	
Pace	SKY PLUS	9F21	
Grundig	TP2	4E01	2.41
Grundig	TP3	4E02	2.41
Grundig	TP3 CD	4E03	2.41
Grundig	5512	4E04	2.41 b
Grundig	5512 CD	4E04	2.41 b
Grundig	ASPEN	4E05	2.41
Thomson	MAPLE	4E06	2.42
Amstrad	TP2	4F01	0.bq.01
Amstrad	TP3	4F02	3.bq.01
Amstrad	5512	4F03	5.bq.01
Amstrad	DRX300	4F05	7.bq.56
Amstrad	DRX400	4F06	AMS8bq08
Panasonic	TP3	0F01	P2.2.60
Panasonic	MN2	0F02	1.1.K
Panasonic	MN2.5	0F03 01/02/05	2.0.X
Panasonic	MN2.5	0F03 07 / 0A	2.0.X
Panasonic	iDTV	0F04	3.0.V – on order
Panasonic	MN2.8	0F05	5.0.O
Sony	TP3	6F01	S750.48
Sony	Emma	6F02	S760.39

Facility overview: infrastructure

Testing at the Two Way TV STB farm presents you with two options. Testing can either occur live using our live Sky satellite feed or using our internal play-out facility – a replica of the Sky head end.



Benefits of testing using over-air testing / live off-air data stream

- Testing is against a full compliment of Sky STB's
- Testing is against a live satellite feed and, therefore, the live Sky service
- Testing can be done against the return path using Sky's full AUS service
- Download times are real

Benefits of testing using the TWTV internal play-out facility / internally generated data stream

- Testing is against a full compliment of Sky STB's
- Testing can be done against the return path using Sky's full AUS service
- Download times are realistic owing developers to gauge required bitrates for deployment often enabling valuable bandwidth savings
- No requirement for expensive over-air bandwidth
- No need for ghost or test channels configured by Sky
- Complex channels requiring multiple video / audio & data PIDs can be configured to evaluate potential technical implementations before committing channel configuration requests to Sky
- Where synchronisation with video feeds is required these can be played on demand or looped to test against



Facility overview: the testing studio

In addition to the infrastructure and compliment of STB's outlined above, the Sky digital STB farm at Two Way TV is equipped with the following:

- 6 TV monitors, each allowing you to switch between 4 STB's
- 6 VHS VCRs to record the test cycle (tapes provided)
- PC and printer
- A secure area on the Two Way TV network to log documentation
- HotDesk with analogue line enabling remote dial-in access to third party corporate network (access to corporate LAN, email, servers, etc.)
- Dedicated telephone line

Pre-requisites for using the stb farm

Over-air testing / live off-air data stream

In order to test interactive TV applications within the Two Way TV Sky Digital STB farm over-air the application must be broadcast on a Sky digital test channel. For clarity this means, you have:

- A test channel has been set up within the Sky Digital Electronic Programme Guide (EPG)
- Allocated satellite bandwidth
- An ability to play-out and uplink interactive content onto the Sky network
- A Sky Producer certificate and the ability to digitally sign your application
- All applications have been signed
- Sky STB test cards - capable of viewing the relevant test channel

Please note:

- *To be able to view more than one STB at a time more than one test card is required*
- *If premium rate phone numbers used for return path, Two Way TV need to be informed before booking the farm to ensure our Telecom provider allows access to the numbers from our offices*
- *Wet Hire requires that TWTv is provided a full Test Script*

Internal play-out facility / internally generated data stream

To enable Two Way TV to prepare a suitable and realistic replica environment using our internal play-out facility the following information is required:

- PIDS, Track Tags and bitrates to define the test channel in Sky Extended Stream Information (XSI)
- A trigger generated on the PID
- A producer certificate and ability to digitally sign your applications

Please note:

- *If premium rate phone numbers used for return path, Two Way TV need to be informed before booking the farm to ensure our Telecom provider allows access to the numbers from our offices*
- *Wet Hire requires that TWTv is provided a full Test Script*



UK cable set top box farm

The Two Way TV STB farm boasts a near full compliment of UK digital cable STBs that are deployed in the UK. As with our Sky digital facility, Two Way TV's need to rigorously test applications in adherent to NTL & Telewest's UAT guidelines created the Two Way TV UK cable set top box farm. Previous clients to benefit from using the Two Way TV's set box farm include Channel 4, Front Row, FlexTech & Yoomedia.

Facility overview: set top boxes

The Two Way TV STB farm boasts a near full compliment of UK digital cable STBs that are deployed in the UK. The following table shows the full range of available boxes:

Manufacturer	Version
Pace	Dvi1000
Pace	Dvi1000 b
Pace	Dvi2000
Pace	Dvi4000
Scientific-Atlanta	Explorer 4000



Facility overview: the testing studio

In addition to the infrastructure and compliment of STB's outlined above, the UK cable STB farm at Two Way TV is equipped with the following:

- 6 TV monitors, each allowing you to switch between 4 STB's
- 6 VHS VCRs to record the test cycle (tapes provided)
- PC and printer
- A secure area on the Two Way TV network to log documentation
- HotDesk with analogue line enabling remote dial-in access to third party corporate network (access to corporate LAN, email, servers, etc.)
- Dedicated telephone line

Pre-requisites for using the stb farm

Two Way TV require the application files in advance of the booking to ensure that the application is accessible to you on our rehearsal network.

Charge Out Rates

Sky digital stb farm: over-air testing

Dry Hire / Basic Hire	£1,000 / day Incident report forms Access to facilities offered
Wet Hire / Standard Hire	£1,600 / day Two Way TV provides a quality assurance tester and complete test management. We will provide details of test results with completed incident report forms.
Any special requirements / support	£100 per hour on a time material basis

Sky digital stb farm: internal play-out

Dry Hire / Basic Hire	£1,500 / day Includes set-up support Incident report forms Access to facilities offered
Wet Hire / Standard Hire	£2,000 / day Includes set-up support Two Way TV provides a quality assurance tester and complete test management. We will provide details of test results with completed incident report forms.
Any special requirements / support	£100 per hour on a time material basis

UK cable stb farm

Dry Hire / Basic Hire	£1,000 / day Incident report forms Access to facilities offered
Wet Hire / Standard Hire	£1,600 / day Two Way TV provides a quality assurance tester and complete test management. We will provide details of test results with completed incident report forms.
Any special requirements / support	£100 per hour on a time material basis



Payment terms

- 50% non-refundable deposit on confirmation of booking
- Balance payable within 15 days of first day's use
- 100% of fee remains payable if booking is cancelled with less than 10 working days notice

Contact

To ensure a successful outcome for your project, in the first instance call and discuss it with us.

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