

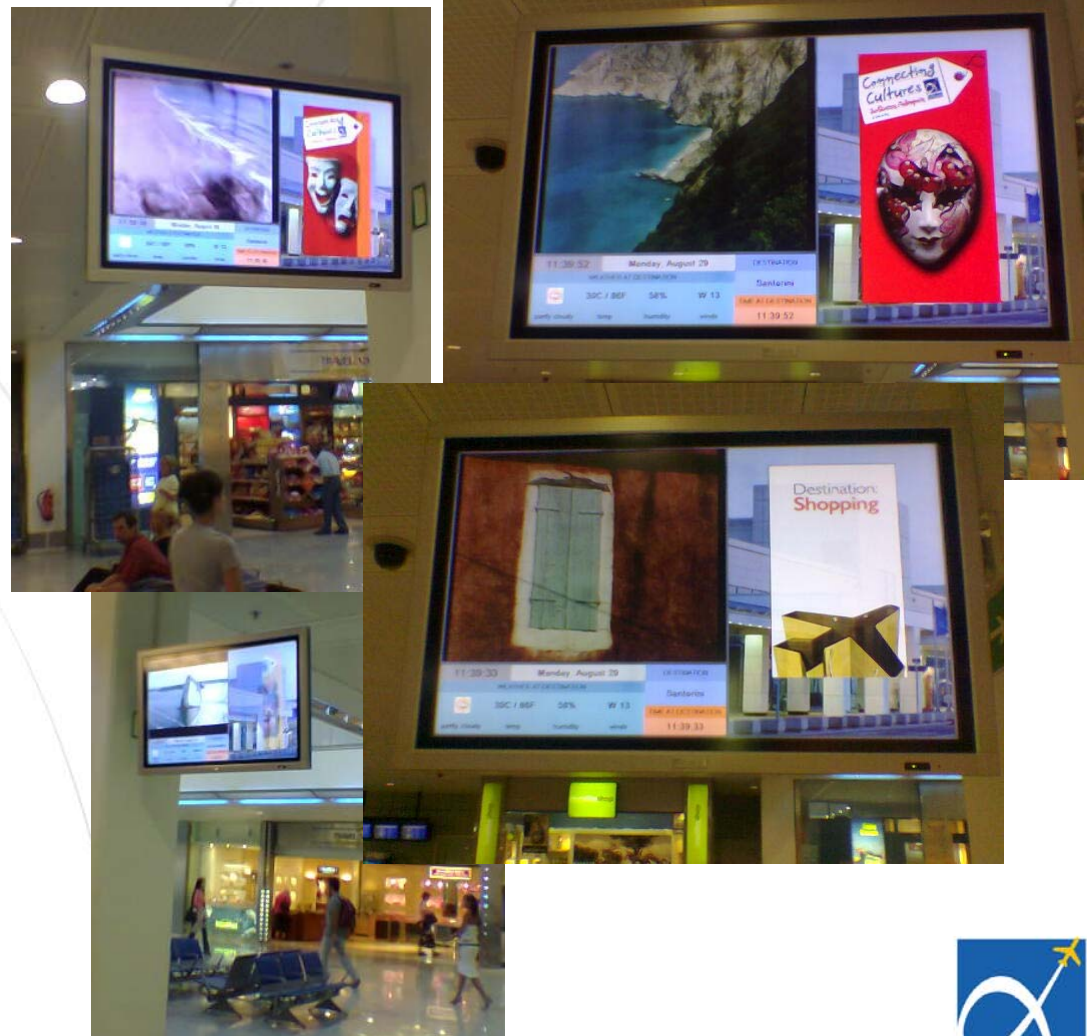
# Athens International Airport

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**Streaming technologies over IP networks:  
A path from Flight Information Systems to  
Passenger Information Systems**

# Passenger Information system

- ✓ Next generation passenger information systems
- ✓ Departing and arriving passengers have different information needs
- ✓ Weather, time, currency, transportation schedules, headline news
- ✓ Location based services
- ✓ Used for HDTV (High Definition television stream playback)



# TFT monitor interface



Page 1 of 8 Arrivals

| AIRLINE        | FLIGHT | ORIGIN        | SCHED | REMARK        |
|----------------|--------|---------------|-------|---------------|
| OLYMPIC        | OA 412 | New York JFK  | 10:10 | Arrived 10:35 |
| THY AIRLINES   | TU 220 | Tunis         | 10:15 | Arrived 10:25 |
| OLYMPIC        | OA 061 | Paros         | 10:25 | Arrived 10:45 |
| OLYMPIC        | OA 003 | Naxos         | 10:30 | Arrived 10:15 |
| MEA            | ME 251 | Beirut        | 10:40 | Cancelled     |
| OLYMPIC        | OA 332 | Larnaca       | 11:00 | Arrived 11:05 |
| TAROM          | RO 277 | Bucharest OTP | 11:05 | Arrived 10:45 |
| AEGEAN CRONOS  | A3 903 | Larnaca       | 11:05 | Arrived 11:00 |
| OLYMPIC        | OA 573 | Mitilini      | 11:10 | Arrived 10:55 |
| AEGEAN CRONOS  | A3 223 | Kos           | 11:15 | Arrived 11:05 |
| CYPRUS AIRWAYS | CY 384 | Larnaca       | 11:15 | Arrived 11:05 |
| MAERSK         | DM 141 | Copenhagen    | 11:20 | Arrived 11:05 |
| OLYMPIC        | OA 533 | Chania        | 11:20 | Arrived 11:40 |
| OLYMPIC        | OA 753 | Samos         | 11:25 | Arrived 11:10 |
| OLYMPIC        | OA 322 | Istanbul      | 11:25 | Arrived 11:15 |
| OLYMPIC        | OA 803 | Ioannina      | 11:35 | Arrived 11:50 |
| OLYMPIC        | OA 905 | Thessaloniki  | 11:40 | Arrived 11:30 |
| OLYMPIC        | OA 505 | Iraklion      | 11:40 | Arrived 11:35 |
| VIRGIN EXPRESS | TV 402 | Brussels      | 11:45 | Arrived 11:15 |
| AEGEAN CRONOS  | A3 307 | Iraklion      | 11:50 | Arrived 11:55 |
| Alitalia       | AZ 720 | Rome FCO      | 11:55 | Arrived 11:40 |
| OLYMPIC        | OA 703 | Rhodes        | 11:55 | Arrived 12:00 |

13:10

WEDNESDAY, DECEMBER 8

DESTINATION

WEATHER AT DESTINATION

PARIS  
FRANCE



40F/90°C

80%

NW

TIME AT DESTINATION

cloudy

temp

humidity

winds

12:10

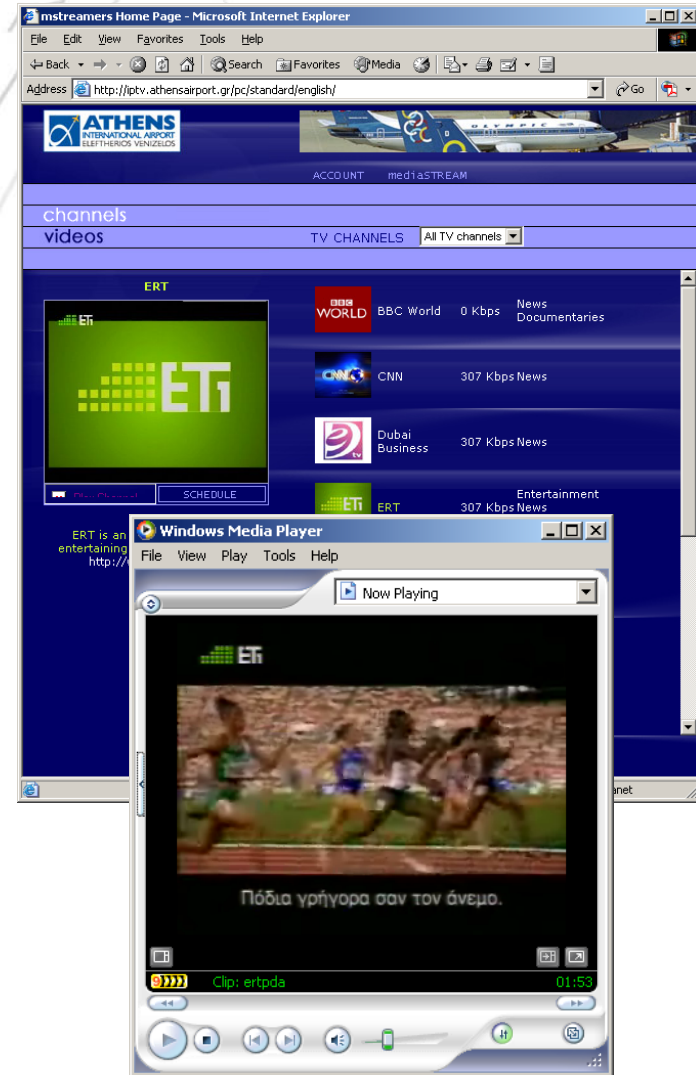
# PC interface

- ✓ PC interface is accessible via any Web browser.
- ✓ Allows live video channel selection or video on demand.
- ✓ Requirements for playback:
  - ✓ Enough CPU power
  - ✓ RAM
  - ✓ Windows Media Player ver. 9
- ✓ Based on MPEG-4 advanced video compression algorithms, takes about 500 Kbps - 1.5 Mbps per video stream.



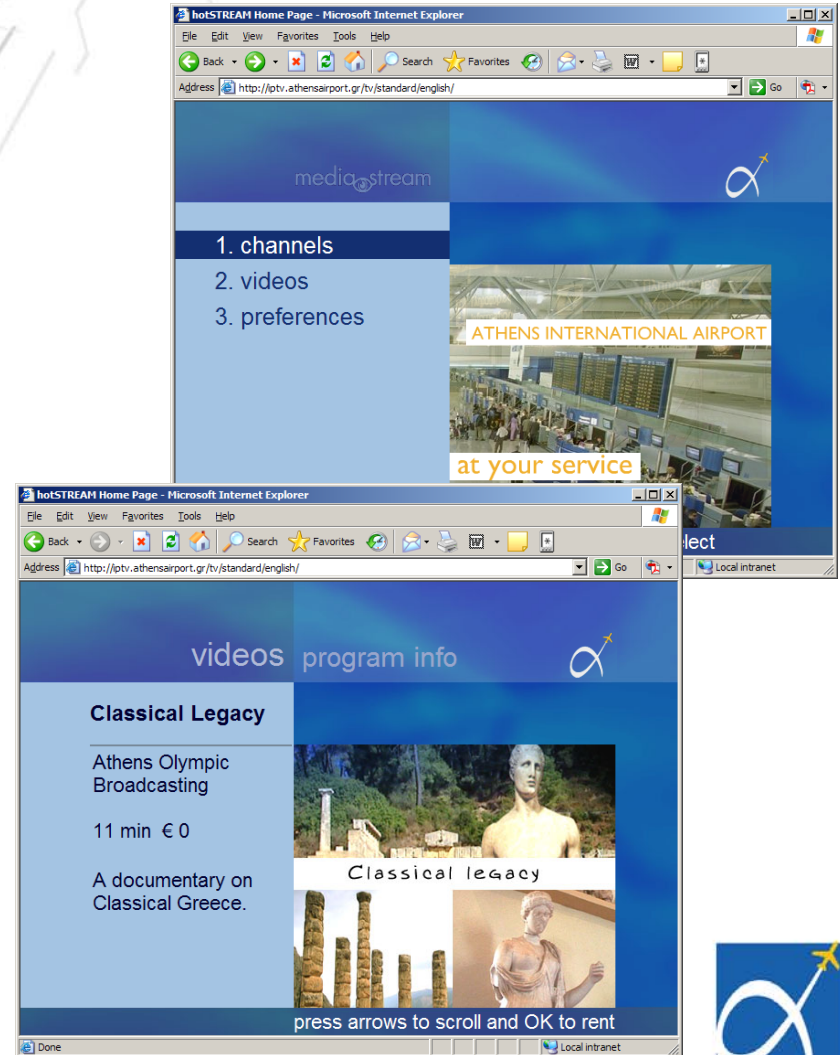
# Video streaming concept

- ✓ Streaming video is using the existing airport's IP network
- ✓ 12 TV channels for playback on PC, PDA or TV sets
- ✓ Video-on-demand with movies, video-clips or documentaries stored in the system servers.
- ✓ Centralized system management with users that subscribe and remote control of playback devices.



# TV interface

- ✓ TV interface is accessible via Internet Explorer running on Wintel based set-top-boxes.
- ✓ Allows live video channel selection or video on demand.
- ✓ Requirements for playback:
  - ✓ Enough CPU power
  - ✓ RAM
  - ✓ Windows Media Player ver. 9
- ✓ Based on MPEG-4 advanced video compression algorithms, takes about 1,5 Mbps per video stream.



# Playback on TV sets

- ✓ Playback over the Internet to wired or wireless devices.
- ✓ Playback on TV sets or monitors equipped with set-top-boxes.
- ✓ Fujitsu-SIEMENS Activy media centre is used as the multimedia playback set-top-box.
- ✓ Usage of advanced MPEG-4 algorithm for video compression allows low bandwidth operation at 1,5 Mbps for TV sets playback



# PDA interface

- ✓ PDA interface is accessible via mini Internet Explorer.
- ✓ Allows live video channel selection or video on demand.
- ✓ Requirements for playback:
  - ✓ Enough CPU power
  - ✓ RAM
  - ✓ Windows Media Player ver. 9
- ✓ Based on MPEG-4 advanced video compression algorithms, takes about 160 Mbps per video stream.
- ✓ Ideal for WiFi network operation.
- ✓ Excellent sound quality.





# MediaSTREAM back-office

- ✓ Centralised streaming server management.
- ✓ Allows total server control.
- ✓ Capability for preview Channels, movies, subscribers all in one management platform with a single user interface.
- ✓ No prerequisites for the operator.
- ✓ Troubleshooting and problem resolution capabilities.

The screenshot displays the MediaSTREAM back-office web interface. The main window is titled "MediaStream Backoffice Server - http://iptv.athensairport.gr/pc/". The interface is divided into several sections:

- Media servers Encoders:** A tree view on the left shows a hierarchy of encoders. Under "ENCODER-07 (IP = 172.19.34.7)", there is a sub-entry for "TV07-RAI".
- Encoder PCTV at machine ENCODER-07:** The right-hand pane shows the configuration for the selected encoder. It includes:
  - Status:** running
  - Session profile:** \\Encoder-07\IPTV Profiles\TVPC.wme
  - Change encoder name to:** PCTV
  - Input devices:** Video: o100vc.dll - Osprey Capture Card 1; Audio: Osprey-200 Audio - board 1
  - Output:** HTTP Port: 1047; Connections: none; View button
  - Encoding:** Profile: (empty); Video Bandwidth (Kbps): 1427 [1427]; Current frames p; Audio Bandwidth (Kbps): 64.04 [64]; Total Bandwidth
  - Content information:** Fields for Title, Author, Copyright, Rating, and Description.
- Preview Window:** A small window titled "ENCODER-07 : 1047" shows a live video feed of a news anchor at a desk. The status bar at the bottom of this window indicates "Playing: 1491 K bits/second".

# BizSTREAM clients manager

- ✓ Centralised streaming client management.
- ✓ Allows total client control.
- ✓ Capability for preview!
- ✓ Client software runs on the client machine
- ✓ Advances troubleshooting and problem resolution capabilities for client problems.
- ✓ Remote shutdown and wake-up.

The screenshot shows the BizSTREAM Clients Manager interface. The main window displays a list of clients with the following columns: User name, Group, IP address, and Device ID. The 'Client command' dialog box is open, showing a table of client details and a 'Send command to client Hdeskextra2' panel with various control buttons.

| User name   | Group       | IP address  | Device ID    |
|-------------|-------------|-------------|--------------|
| conrademo   |             | 172.19.4.69 | 2K_00202A... |
| Hdeskextra2 | Hospitality | 172.19.4.62 | XP_003005... |
| Hdeskextra3 | Hospitality | 172.19.4.63 | XP_003005... |
| Hdeskextra4 | Hospitality | 172.19.4.64 | XP_003005... |
| Hdeskindra2 | Hospitality | 172.19.4.66 | XP_003005... |
| iptvpc01    | Tunnel      | 172.19.4.49 | XP_003005... |
| bulgari     | Throttles   | 172.19.4.59 | 2K_00202A... |
| dutyfree    | Throttles   | 172.19.4.58 | 2K_00202A... |
| Hdeskextra1 | Hospitality | 172.19.4.61 | XP_003005... |
| Hdeskindra1 | Hospitality | 172.19.4.65 | XP_003005... |
| Hdeskindra3 | Hospitality | 172.19.4.67 | XP_003005... |
| Hdeskindra4 | Hospitality | 172.19.4.68 | XP_003005... |
| hermes      | Throttles   | 172.19.4.60 | 2K_00202A... |
| iptvpc02    | Tunnel      | 172.19.4.50 | XP_003005... |
| iptvpc03    | Tunnel      | 172.19.4.51 | XP_003005... |
| iptvpc04    | Tunnel      | 172.19.4.52 | XP_003005... |
| iptvpc05    | Tunnel      | 172.19.4.53 | XP_003005... |
| optical     | Throttles   | 172.19.4.57 | 2K_00202A... |
| projector   |             | 172.19.4.35 | XP_0002A5... |
| swatchleft  | Throttles   | 172.19.4.55 | 2K_00202A... |

# MediaSTREAM subscribers manager

- ✓ Centralised subscriber management.
- ✓ Allows total subscriber control.
- ✓ Capability for statistics
- ✓ Internal billing
- ✓ Marketing campaigns
- ✓ Support for discounts, programs, bouquets
- ✓ Links easily to external billing systems

The screenshot displays the 'Media Server MEDIA (2003)' interface. It features a tree view on the left showing a hierarchy of encoders (ENCODER-07 to ENCODER-10) and a 'MEDIA' server, each with its own set of channels and download links. The right pane shows a summary of 'Active channels' with statistics: Total Channels: 32, Active Connections: 12, Active channels: 19, and Active Redirections: 0. Below this is a table of active channels with columns for Channel, Source, and Status.

| Channel             | Source   | Status    |
|---------------------|--|-----------|
| 2004Anniversary     | AOB_opening_ceremony_vbr_1500_Full_720.wmv (2644 secs) | streaming |
| AIAChannel1         | Splala_cbr2_1500_Full.wmv (1916 secs)                  | streaming |
| AIAChannel2         | Byzantine_legacy_cbr2_1500_Full.wmv (903 secs)         | streaming |
| BBCWorldPDA         | PDA04BBCWorld  | streaming |
| CNNPDA              | PDA11-CNN  | streaming |
| DubaBusinessChannel | TV12-Dubai   | streaming |
| ERTPDA              | PDA01-ERT  | streaming |
| EuronewsPDA         | PDA06-Euronews   | streaming |
| Eurosport           | TV08-Eurosport   | streaming |
| Greekislands        | Ionia_nisia_cbr2_1500_Full.wmv (1343 secs)             | streaming |
| MADPDA              | PDA02-MAD  | streaming |
| Modern_Greece       | Athina_Artiki_cbr2_1500_Full.wmv (1153 secs)           | streaming |
| N24                 | TV10N24  | streaming |
| NET                 | TV03-NET   | streaming |
| NETPDA              | PDA03-NET  | streaming |
| OracleBMW/racing    | UBS_trophy_the_races_vbr_1500_Full_720.wmv (2916 secs) | streaming |
| RAINEWS24           | TV07-RAI   | streaming |
| TravelChannel       | TV09-Travel  | streaming |
| TV5                 | TV05-TV5   | streaming |

Below the active channels table is a section for 'Unicast channels' with columns for Name and Source. The list includes channels like 2004Anniversary, AIAChannel1, AIAChannel2, BBCWorld, and others, each with a file path source.

# Conclusions

- ✓ IPTV can play the role of a multimedia content delivery hyper-system using FIDS as a an information channel feed.
- ✓ Compatibility with all kinds of media players (PC, PDA, TV set-top-boxes, mobile phones) assures investment protection.
- ✓ New ideas can be implemented like proximity services, intelligent monitors and commercials on FIDS displays.
- ✓ There are more ideas not yet spoken...

