

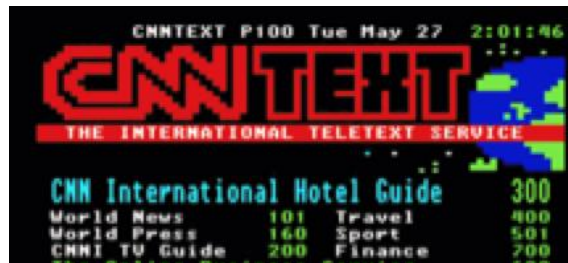
YOTTA MEDIA 10th HbbTV Symposium & Awards 2022

ATSC 3.0 TV Application SDK (Run3TV.org)



Raj Patel & Gary Knowles

- 25 years experience in media companies unlocking commercial opportunities utilising new technologies.
- Understanding from high-concept/idea to developing & delivering new products to market.

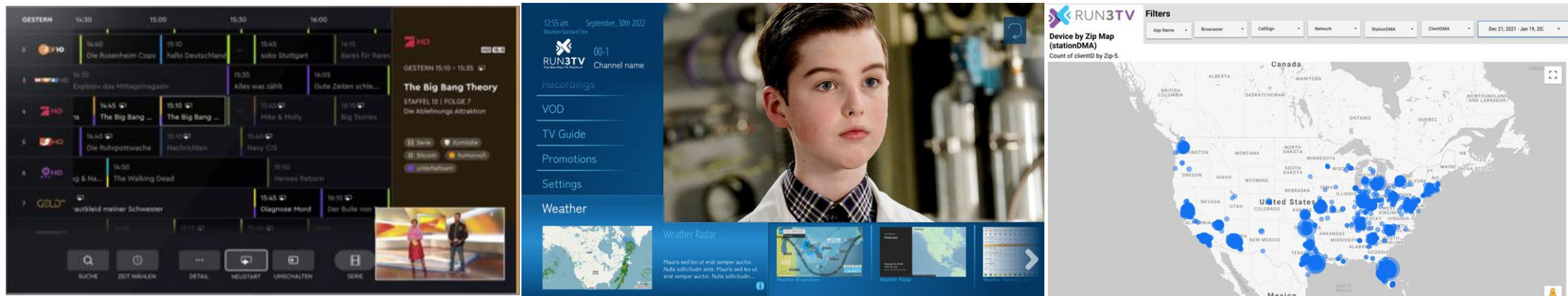


A night scene of a suburban street with houses and a vintage television set on the ground. The houses are illuminated with warm lights, and a car is parked in the driveway. The television set is a small, boxy model with a glowing screen, placed on a small mat of gravel on the asphalt. A power cord is visible trailing from the TV across the road.

Reimagining The global TV landscape

Lots to talk about!

Come see, ask questions, discuss, learn and know who we are.



HbbTV Operator Applications

Tivùsat (Italy)
HD+ (Germany)
HD+ (Ghana)
OpApp as a Service

ATSC 3.0 Applications

Run3TV Web TV Platform
Broadcast Applications
Emergency Alerts & Notifications
Linear Replaceable Ads

Data Analytics

Tivùsat
HD+
ATSC 3.0 USA
Other ATSC 3.0

Who is Pearl TV & the PNC (PearlTV Network Consortium)

Business Consortium

800+ TV Stations



Partnered with 5 Networks



99% of U.S. Households

Run3TV Web Platform creates a marketplace

- Differentiate broadcaster apps
- Consistent, fast user interface
- Familiar tools for web teams
- Certified on NEXTGEN TVs
- Extensible and upgradeable
- Open dev community
- Pre-integrated adtech
- Focus on app rather than integration





1:23 PM (EST)

WDIV Local 4

Latest News

Weather

Help Me Hank

Good Health

Defenders

Features

Live in the D

Something Good

Latest News



News Brief, 1/12/2022, Noon Update

Duration: 56s



Local 4 News at Noon -- Jan. 12, 2022

Duration: 9m26s



NEWS

T



WDIV

4

12:13 62°

12:55 am September, 30th 2022
Mountain Standard Time



00-1
Channel name

Recordings

VOD

TV Guide

Promotions

Settings

Weather

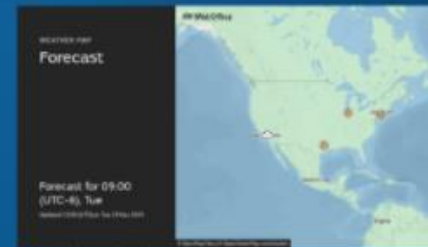


Weather Radar

Mauris sed leo ut erat semper auctor. Nulla sollicitudin ante. Mauris sed leo ut erat semper auctor. Nulla sollicitudin...



Weather Breakdown



Weather Radar



Weather Warnings and Alerts

Vote on the issues

Do you think the current cost of living crisis is going to affect you and / or your family?

Yes

No

LIVE RESULTS

Yes 48%

No 30%



@stationnews for more information

Press Back Up to return

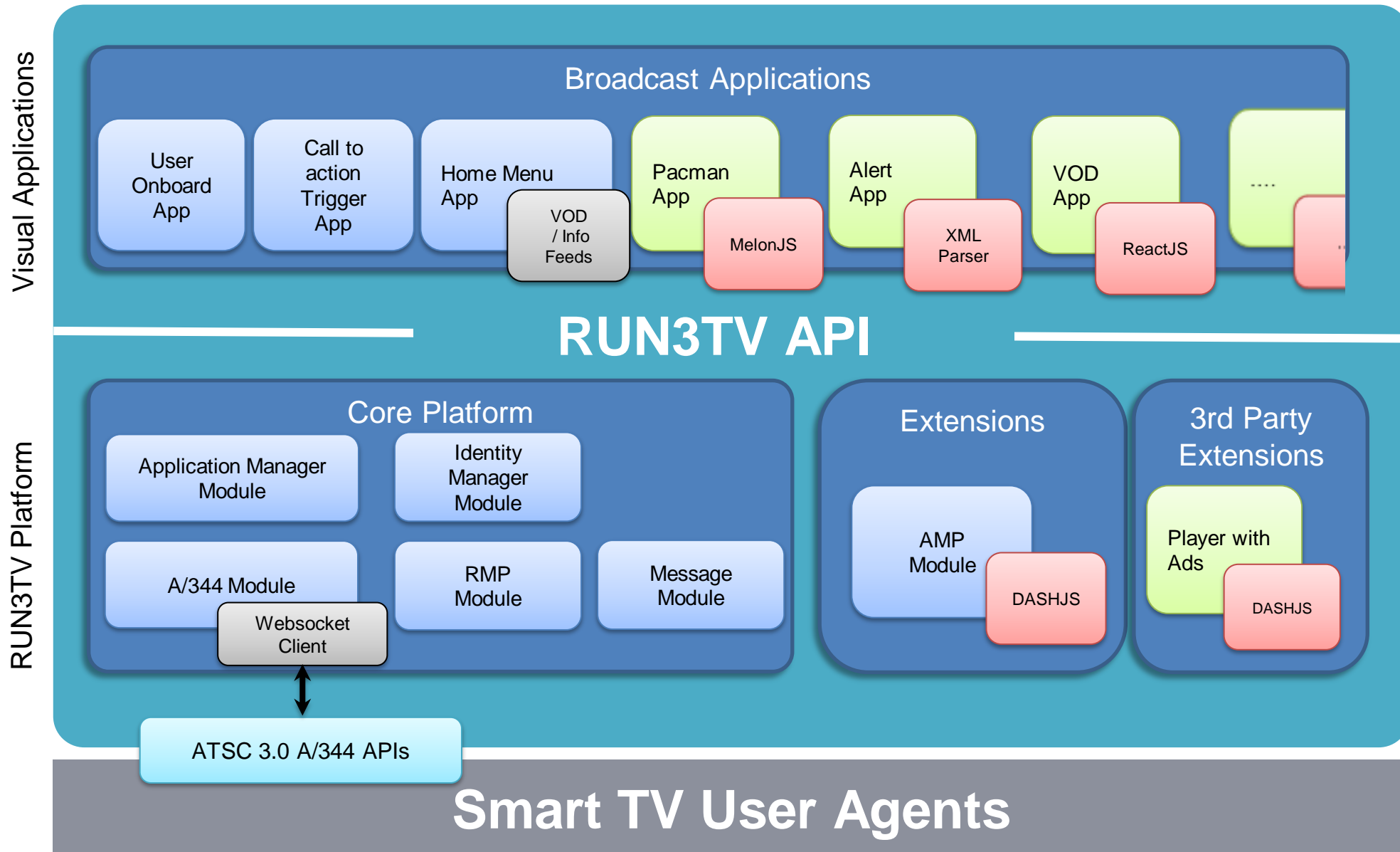
LIVE BUSINESS OIL PRICE SURGES

DOW -2.8%

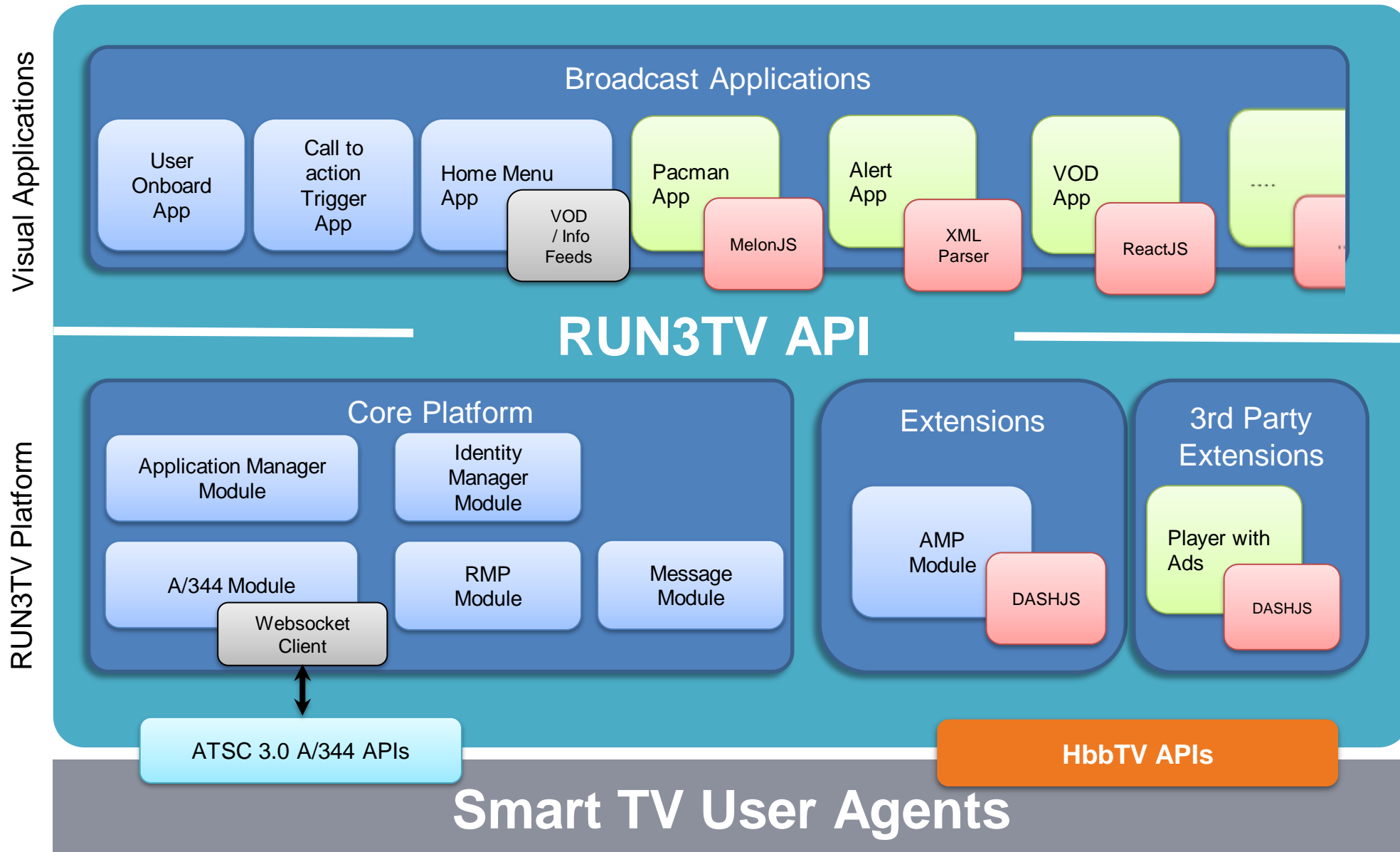
OIL REFINERS STRUGGLE TO KEEP UP WITH DEMAND

BUSINESS NEWS * BUSINESS NEWS * BUSINESS NEWS * BUSINESS NEWS * BUSINESS

Run3TV Technology Stack



Run3TV Technology Stack inc HbbTV



A/344 API based on Web Socket RPC

Getting the unique reference to a service example

```
service = vbo.currentChannel
service.onid // 2
service.tsid // 3452
Service.sid // 2001
dvb_triplet = "dvb://" + service.onid + "." + service.tsid + "." + service.sid
```

ATSC 3.0 Broadcast Application

```
{ "jsonrpc": "2.0",
  "method": "org.atsc.query.service",
  "id": 55 }
```



ATSC 3.0 Receiver

```
{ "jsonrpc": "2.0",
  "result": {
    "service" :
    "https://doi.org/10.5239/8A23-2B0BB",
  }
  "id": 55 }
```



Interesting...

What about HbbTV APIs based on Websocket RPC

- Could HbbTV APIs run via websocket RPC
- Opportunity to refactor HbbTV APIs
- Does it help CE's manufacturers
 - Reduce licensing costs, porting newer versions of the browser
 - New APIs inclusion does not mean new browser updates
- Access to new information like DVB-I from the receiver in native JSON
 - HbbTV Broadcast Application
 - HbbTV 3.0 Receiver

```
{ "jsonrpc": "2.0",  
  "method":  
  "org.hbbtv.query.channel",  
  "id": 55 }
```



```
{ "jsonrpc": "2.0",  
  "result": {  
    "service" : "dvb://2.3452.2001",  
  }  
  "id": 55 }
```