



Accelerating IPTV Innovation

"Television is a new medium. It's called a medium because nothing in it is well-done."

- Fred Allen, on the radio program The Big Show, Dec. 17, 1950

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Innovation? What Innovation?

There's a content explosion happening on the Net. Hundreds of sites with user provided video. YouTube adds 150,000 clips daily. NetFlix boasts seven thousand on line movies --- More than the largest North American cable operators. Social media addicts spend more time on Facebook than they do on TV. Seventeen million users visit MySpace every day. Web 2.0 is changing the face of entertainment, and the world is leaning forward to join in.

TV is racing to catch up. And the guys that had the foresight to get into IPTV are finally poised to say "I told you so". IPTV, built on the same platform and technologies that greased the wheels of the Internet, has the potential to revolutionize the TV experience.

But something's not quite right. Take a look at the IPTV industry today: with a few exceptions you'll find Me Too TV. Operators are still fighting to compete with cable. Base services like HD and PVR are just really entering the market in wide deployments now. Where are the differentiated services? Where is the innovation?

Well, for one thing, IPTV turns out to be real, real hard. Encoders and networks and DSLAMs and app servers, all needing to talk to each other. And set tops. Set tops with too little memory, not enough CPU and substandard browsers barely able to render a simple web page, let alone play a YouTube video. Scalability issues. Quality issues. Content issues. All those OSS systems, like billing and provisioning, that have to be hooked up if you're ever going to collect any money. And IPTV middleware, the glue that sticks it all together, busy with the important business of making sure that the whole thing continues to work and function.

With all this complexity, little wonder that IPTV has been slow to deliver on the promises. But it doesn't have to be that way. In this paper, we'll talk about an approach to turn things around.

IPTV platforms have the potential to enable an evolved TV experience

The IPTV innovation challenge - Complex ecosystems where even a small change can impact many components



IPTV SERVICE DEVELOPMENT TODAY

To understand why innovation is so tough in IPTV today, let's take a look at a simplified (very simplified!) IPTV services stack. For you OSI technophiles out there, calm down --- we're not diving into the seven tier model here, sorry. For the purposes of this topic, we'll look at IPTV in three layers, shown below in Figure 1.

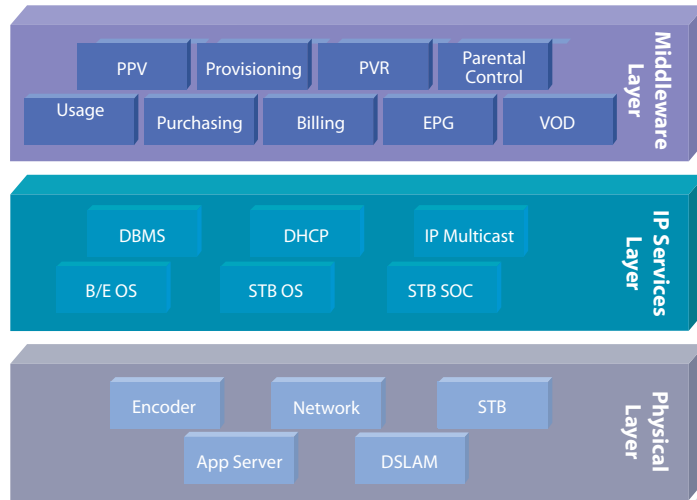


Figure 1 – IPTV Conceptual Layers

The IPTV Legacy Model

At the IPTV physical layer, minimal change generates maximum cost impacts

Down at the bottom is your physical layer, with all the hardware that you need to run your service --- Encoders, networks, database servers, application servers, DSLAMs, set tops, etc. This is the stuff you don't ever want to change if you can help it. When it's needed, change is painful. Think about the recent upgrades for HD as an example. The encoders had to be swapped. The set tops had to be replaced. And all the pipes in between (home, access and core networks) had to be redesigned to consider the new bandwidth needs. HD is an extreme example, but any change at this layer is agonizing.

Riding over the physical layer is the base level IP services platform. Here's where your DHCP services are, and your IP multicast stuff. Let's throw the operating systems and database engines in here too, for the sake of simplicity and to have a little fun with the purists. It would be great if everything in this layer just played together nicely and never needed to change. Of course, that's not the reality. Solaris 9 stops shipping. Microsoft launches Vista. Oracle puts out a new release.



*IP Services Layer –
Change generates high
regression costs with
minimal business value*

JVMs and ODBC's and J2EE's... And just when things are starting to settle, someone has the great idea to swing the date on daylight savings time, and now everything needs to change again. The good news at this layer is that this stuff has been changing for a long time, and these vendors have it pretty much nailed. The bad news is that you can't take it for granted that the new versions will work together, even though the vendors say so. So for an operator, change at this layer means integrate, test and retest. Not as painful as layer one, but tedious, risky and after all that work, your customer won't pay you an extra dime.

*IPTV Middleware is
today's platform for
services innovation,
but change is complex*

Finally, the IPTV middleware. Here is where all the real customer facing change happens, for anything that could possibly matter to your IPTV subscribers. Here is where operators stack up the feature requests, trying to differentiate their service, keep their subscribers and make some money. But change is tough here too. The middleware is really the DNA of IPTV, and ties everything together into a single system. For the middleware vendor, this means high development costs to analyze the impacts of change, develop with all those considerations in mind, and test to make sure it all still works. For you the operator, it means arduous acceptance testing, staged preproduction cycles, and complex software upgrade plans. This all translates into high cost and long timelines to get anything new in the market.

*Cost and complexity
increases with the depth
and breadth of change*

Of course, this model oversimplifies the problem by a long shot. But you can pull out a couple of principles with a quick look:

- The **deeper** the change, the greater the cost and complexity. Changing something at a lower layer amplifies the chance that something above it is impacted, so that increases analysis, development and testing time. That also means a greater risk that the thing won't work when your vendor hands it to you, so it drives up acceptance and deployment times.
- The **wider** the change, the greater the cost and complexity. Upgrading that OS to the new version isn't the problem so much --- It's the upgrade that you now need to your database, the new version of the app server that's required, etc. The middleware change you needed to add that small feature ships with a new load of client software, a new back end server load and a book-length upgrade plan (Oh sorry, correction, you have to write the upgrade plan yourself).

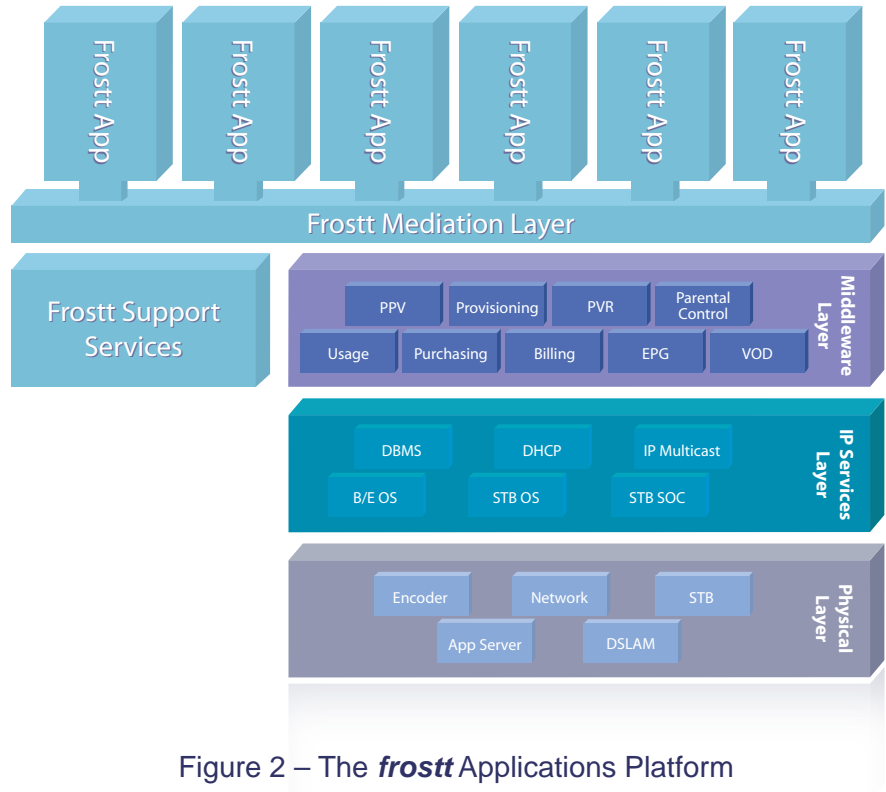
Motherhood statements, right? But in fact today's IPTV ecosystem really hasn't been built with these principles in mind. Change is often more widespread, or deeper, than it may have been if the original design had considered the potential impacts.

Next, let's look at a model designed with those concepts in mind.



ACCELERATED IPTV INNOVATION

In this section, we're going to take a look at an approach to help you deploy all those innovative services faster. An approach that will speed development, decrease your deployment times, and get those interactive apps out to your customers quicker --- So you can make money off them.



A model designed to accelerate IPTV service innovation

Figure 2 – The **frostt** Applications Platform

Check out Figure 2. This is the **frostt** Applications Platform, and it's been designed specifically to accelerate IPTV application deployment. It has a few key features we should note:

First, the three layer model we covered earlier remains unchanged. That's good news for you --- as a provider, you've likely put big money into IPTV already. Any solution that helps you speed up innovation needs to work with that investment, not force you to drop it into the harbor. So **frostt** sits on top of your IPTV ecosystem, designed to work with and complement your existing service.



frostt complements and leverages the existing IPTV ecosystem

Actually, **frostt** uses the layers underneath to accelerate development. IPTV middleware offers lots of great support services to applications --- Things like parental control management, billing and provisioning interfaces, profile management and authorization control. Today, the middleware uses these to support its own features. But why not use those services for our applications too, rather than reinvent the wheel? So **frostt** provides a mediation layer that exposes the available support services of the IPTV middleware for use by the outside world. This mediation layer has a side benefit too... applications built on top of it don't really care what middleware they work with, so long as the support is there. So you end up with applications that can port easily across middleware solutions. Not that you're thinking about swapping IPTV middleware solutions anytime soon... They're pretty sticky. But this portability also means reuse for the developer.

frostt integrates IPTV with Web 2.0 services

Of course, IPTV middleware may only give you some of the support services you need. And each middleware vendor will make a different subset of support services available. So we have to develop the rest, right? Nope. This is where we pull in the power of Web 2.0 tools and technologies. There's a wealth of support services on the net today, just waiting to be mined by IPTV. So we pull these in as **frostt** Support Services, expose them through the mediation layer and we're off to the races.

frostt differentiated applications

But let's talk about **frostt** Apps. This is where the real bang for the IPTV buck is, and where maybe you can differentiate your service and make some money. So what kind of applications are we talking about? Well, the idea is that they could be anything that fits your market, but here's a few: OTT "YouTube" videos on the TV. Self care capabilities that let your customers fix their own service, without calling you for help. Social Media services on the TV. On demand purchasing that lets your customers upgrade their TV service to that new HD package (again without calling a helpdesk rep). In a nutshell, enhanced, interactive applications that drive new revenues, drop your Opex costs and keep those customers.

Accelerated development

Accelerated deployment

Decreased deployment risk

So how does the **frostt** platform help get these apps out there faster? Well, here are just a few ways:

- With **frostt**, development now focuses completely on the content of the app. There's no need to worry about the base support services that the apps need; instead, we just pull in services like provisioning and parental control from the mediation layer, and off we go. Result: faster development.
- If a support service is needed, there's still the very good chance that we can pull it in from the Net and quickly integrate. Again, faster development.
- QA gets faster too. Now the testing team can dive deep into making sure the app works, and not worry about long regression tests to prove nothing else has changed in the solution. Because nothing else **has** changed in the solution --- That's one of the features of **frostt**.



- Application deployment accelerates. Now acceptance testing is targeted at the application, instead of across the whole IPTV service. The risk that the application will cause problems across the base service decreases. Operator confidence increases, and soak time before full deployment starts to come down.

Here's the summary: The **frostt** Applications Platform accelerates innovation by minimizing both the depth and breadth of change, containing it so it can be managed more effectively. It doesn't replace your IPTV ecosystem, but becomes part of it, using that and the power of the Net to create a powerful platform that can deliver applications faster, cheaper and with lower risk.

Bottom line profitability

At the end of the day, it's really about profitability. And though we all know IPTV has had its struggles with that in this last decade, things are poised to change. We are truly on the brink of an evolved consumer experience, an IPTV 2.0 experience, and the pioneers, after all of that investment and pain, are finally close to cashing in.

frostt ... FLIP TV on its Apps.