A Tale For TV

My History With TiVo

By Wes Hardaker

Those of you that have followed my facebook or blog posts from the last few weeks.... shhhhhhhhhhhhhhhh.....
T-10 Years (All times approximate)

- Bought a series 1 TiVo.
  - Loved it.
  - Awesome remote.
  - Easy to use.
  - Flawless.

- ~40 Hrs recording time
  - Assuming the worst compression
    - Which you don't want

- One Tuner (SD)
T-9.5 Years

- A 40G drive just isn't big enough.
- Bought a third-party disk bracket and cables
- Bought a 120G drive (I think)
- Used Tivo Hacking Software to mod the box
  - Felt like true h(cr)acking
    - ie “they” didn't want me to
- Also bought a life-time subscription
T-7.5 Years

- My Installed Hard Disk Broke
- Used the Tivo hacking software to revert to 40G
- Really missed the extra space
  (and the deleted shows)
T-7 years (really really ish)

- Had a Fedora machine and tried myth
  - Add atrpms repo
  - `# yum install mythtv`

- MythTV impressions with no tuner and an LCD
  - Found it very very easy to install
  - Worked out of the, er, box
  - Easy to use on-screen menu

- Decided to make the switch
Bought and Build a New System

- Actually, it was my first built from scratch
  - Media case for the family room
  - 500G of disk
  - CPU/motherboard combo deal from Fry's
  - 1 Haupauge SD tuner
    - Which came with a remote and IR Receiver
  - Video card with SD output
Setup Experiences

• It was very easy to get installed
• It was less easy to get it perfect
  • I was a geek. I couldn't leave it “as is”.
• Challenges
  • Setting up the IR receiver is a pain
    – Not well documented
    – Lots of trial and error
  • Getting TV guide data was difficult
  • MythTV has a gazzzzzzillion options
    – You don't need to change them, but... I'm a geek
MythTV Impressions

• Video Playback
  • Plays recorded shows, mpgs, DVD ISOs, etc.
  • Rocks
  • Commercial flagging/skipping: no words good enough.

• Image Database
  • Is very good. Display all your folders on your TV!

• Music
  • Wonderful to have
  • The interface leaves a lot to be desired
MythTV Impressions

- Web browser interface
  - Usable. But that's about it.
  - It's better to launch firefox instead and use a mouse

- Information Center
  - RSS Reader: don't use it; computers are better
  - Weather: have used it and is nice
    - (these days my phone is closer)

- Archiving
  - It's easy to burn shows to DVDs
  - Can be tricky to figure out why it doesn't work
MythTV Impressions

• Myth Game
  • Game “browser” is functionally a “launcher”
  • Built in MAME browsing list
  • Can launch native games (eg, supertux)

• Myth NetVision
  • Search youtube, etc

• Anything you want
  • Menus are encoded in XML
  • You can add custom commands to them
MythTV Recording

- The Recording interface is super powerful
  - Beats other systems hands down
  - Record by the common keywords, shows, etc
  - Super power searches as well
    - Record all movies rated 4 stars and higher
    - Any SQL expression for the really brave

- MythWish
  - A perl script to look for a list of things
    - Examples “best episodes from friends and seinfeld”
  - Records all “new” shows (first episodes)
T-6.5 Years

- Added a second SD tuner card
  - Myth is VERY smart about prioritization
    - Each show gets a priority level
  - Can intelligently determine what to record based on the entire schedule database
    - EG: 2 shows now (only) but a later show of a third
  - Typically only records never seen episodes
- Added a 750G disk for more storage
  - It's (now) easy to add more storage directories
  - Myth ensures there is always some free space in each to start a new recording
Show Deletion

• Typical usage:
  • Finish watching a show
  • “Delete” it
  • It actually gets deleted later when space is needed
  • Lower priority shows get deleted first

• When the disks are full
  • Lower priority shows get deleted to make room
  • Problematic as it always deletes/records/deletes...
T-6.75 Years

- Set up “Myth Web”
  - Web based front end to the myth data
  - Schedule, delete, manage recordings
    - Much easier that typing using a remote
  - Download shows
T-6 Years
(You know I'm basically making the years up right?)

- Big problem: random crashes
  - Brings down the whole machine
  - Kernel lockup
  - Seems that it's during heavy usage
- Resolution: new mother board
  - After much much searching:
    It was the cheap mother board
  - Replaced with an decent ASUS motherboard
  - All is well.

- Important Lesson: Do NOT skimp on hardware.
T-4 Years

• Added a 1.5Tb Disk.

• Capacity now:
  • .5 + .75 + 1.5 = 2Tb
  • Started storing whole series of episodes to watch
  • Summer wasn't “reruns” for us
    - (it was shows we recorded during the full seasons)
    - Summer was “less favorites, but still good”
T-3 Years

- My mother-in-law got a new machine
- She *had* a WinME era system
- I took her old system “off her hands” for her
  - Threw in a new drive
  - Threw in a cheap graphics card
  - Put it in our bedroom
- The result:
  - My first second “MythTV Front End”
MythTV Architecture

- MySQL: stores all information
- Back-end
  - Has tuners
  - Is a daemon
  - Records and stores shows
  - Can be “woken up” by schedule or a master BE
- Front-end
  - The GUI interface to actually do things
- Typically: people have 1 FE/BE combination
  - (and often more front ends as well)
MythTV Architecture

Main System
- MySQL
- Back End
- Front End

Your House

Front End
Slave Back End

Ethernet

Front End
T-1 Year

• Finally came into the HD era
• Bought 1 Silicon Dust HDHomerun Recorder
  • Really cool boxes! Sits on the net in the house.
  • Tuners now at 2 SD + 2 HD.
    – No conflicts!
• Really really really painful to set up
  – Entirely comcast's fault
T-5 Months

- Decided the .5G disk was too old
  - Replace early, replace often
- Every manufacturer is failing quality
- Decided on a RAID
  - 1 WD and 1 Seagate: 2TB disks
  - Both Low Power disks (which was new)
  - RAID1 of just over 1TB, with 2TB non-raided
    - Geek humor: 2 + 2 = 3
- Used linux MD raid, not hardware
- Total drives now at 5.5TB
T-2 Weeks

- I was in Prague at the IETF...
T-1 Week

- Returned Home
- Believed it was the PS
  - Replaced it
- Probably the motherboard?
  - Replaced it. And the CPU and the Memory.
- Drives wouldn't spin up. All THREE.
T-4 days

- System fully back up from an older backup
  - 3x 2TB Drives
- Myth Data
  - Gone
- Months of Email
  - Gone
- Recent system improvements
  - Gone
T-0 Seconds

- Still no shows recorded
  - Haven't had time to “finish” fixing myth
  - Thus can't show you half the things I wanted to
  - :-(


Tivo vs MythTV

Tivo:
- Easy to use
- Easy to setup (30 min)
- Buy hardware; done
  - Can't add more later
- Extra money needed for monthly subscription
- They're way is good
- You get what you get
- FF through commercials
- One screen

MythTV:
- Easy to use
- Hard to setup (Hours)
- Expandable over time
  - Add components later
- Extra money goes to making it better
- Customizable
- Full OS on your TV
- Auto-skip commercials
- Multiple front-ends
Other Cool MythTV Benefits

● Themes

● Editing (cut/edit shows)

● Shows are functionally .mpgs on your drive
  ● I take shows on trips on my laptop
    - I do this All. The. Time.
  ● I resize them and put them on my phone
  ● I resize kids shows and put them on my kids rockbox
  ● This is one of the biggest benefits, IMHO
Firefly

Trash

Season/Episode: 1x13
Directed by Vern Gillum

Saffron (from "Our Mrs. Reynolds") returns - after Mal breaks up her current gig, she convinces him and the crew to help out with a "perfect crime" that isn't. The crime: go to Bellerophon and steal a criminal's prototype laser gun from his collection. The plan: Saffron and Mal sneak in and dump the gun down the trash, bypassing security, and the Serenity crew grab it from the disposal system. Of course, this is Saffron, and it turns out she's married to the crook, Durran, and plans to double-cross Mal. Things don't work out so well and Saffron strands Mal naked in the desert. Fortunately Mal and Inara anticipated a betrayal and set it up so Inara grabs the gun, leaves Saffron behind, and rescues Mal.

Starring: Nathan Fillion, Jewel Staite, Summer Glau, Ron Glass, Morena Baccarin, Sean Maher, Gina Torres, Alan Tudyk, Adam Baldwin, Franc Ross, Christina Hendricks, John Bentley, Dwier...
Demostrations

- Myth Web
- Myth TV Front End
<table>
<thead>
<tr>
<th>Channel</th>
<th>Program Title</th>
<th>Time</th>
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<tbody>
<tr>
<td>2</td>
<td>Randolph Duke Spirited Fashion (Rerun)</td>
<td>07:00 AM</td>
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<tr>
<td>2</td>
<td>Mary J. Blige, My Life Fragrance (Rerun)</td>
<td>07:15 AM</td>
</tr>
<tr>
<td>3</td>
<td>Today</td>
<td>07:30 AM</td>
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<tr>
<td>3.1 (KCRAHD)</td>
<td>Today</td>
<td>07:45 AM</td>
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<tr>
<td>3.2 (WX Plus)</td>
<td>NO DATA</td>
<td></td>
</tr>
<tr>
<td>4 (KQCA)</td>
<td>KCRA 3 News at 7am (Rerun)</td>
<td>08:00 AM</td>
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<tr>
<td>4 (KQCA)</td>
<td>KCRA 3 News at 8am (Rerun)</td>
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<tr>
<td>4 (KQCA)</td>
<td>The Dr. Oz Show: What Would You Do? Dr. Oz Goes Under Cover to See How People Handle Uncomfortable Situations</td>
<td>08:30 AM</td>
</tr>
<tr>
<td>6 (KVIE)</td>
<td>Arthur: Francine's Split Decision, Muffy Goes Metropolitan (Rerun)</td>
<td>08:45 AM</td>
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<tr>
<td>6 (KVIE)</td>
<td>Clifford the Big Red Dog: T-Bone, Dog About Town, Clifford's Big Heart! (Rerun)</td>
<td>09:00 AM</td>
</tr>
<tr>
<td>6 (KVIE)</td>
<td>Curious George: George Digs Worms; Everything Old Is New Again (Rerun)</td>
<td>09:15 AM</td>
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<tr>
<td>6 (KVIE)</td>
<td>The Cat in the Hat Knows a Lot About That!: Chasing Rainbows, Follow the Prints (Rerun)</td>
<td>09:30 AM</td>
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<tr>
<td></td>
<td>Super Why!: Dr. Dolittle (Rerun)</td>
<td>09:45 AM</td>
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<tr>
<td></td>
<td>Dinosaur Train: Pteranodon Family World Tour; Gilbert the Junior Conductor (Rerun)</td>
<td></td>
</tr>
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<td>Dinosaur Train: Pteranodon Family World Tour; Gilbert the Junior Conductor (Rerun)</td>
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<tr>
<td>The Big Bang Theory</td>
<td>The Robotic Manipulation</td>
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Penny tags along on Sheldon's first date, Wolowitz finds a new use for a robotic arm.

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<th>Original Airdate</th>
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When Sheldon searches for an alternative to human companionship, the guys become concerned.

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An embarrassing secret of Wolowitz's is revealed, Raj and Sheldon get into a war at work.

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Leonard keeps an affair a secret from Sheldon, Howard and Raj.

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<td>2010-11-04</td>
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<td>3.9 GB</td>
</tr>
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Sheldon's interview with the FBI jeopardizes Wolowitz’s security clearance.

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<td>3.9 GB</td>
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While the guys camp out for a long-awaited movie screening, Penny and Bernadette invite Amy to her first slumber party.
T+2 to 5 Years

- The future of TV shows will change
- The net finally will become the distribution method
  - Connections are getting faster
  - Video is the last bandwidth hurdle
  - A lot of content is available today over the net
    - Hulu, Netflix, Amazon, YouTube, ...
- DRM effects remain to be seen
  - Most cable channels are being encrypted
  - None of the commercial over-the-net is DRM free
- People or working on it. Can they succeed?
Questions?