

ITIGER FOOTBALL OPERATIONS

CLEMSON TIGERS

Computer Science
Computational Arts
Information Technology
School of Computing

CCIT

Agenda

- This is a document to document what needs to be documented…

- Overall Architecture
- Gameday Operations
- Problems
- Hardware
- Network Design
- Future Developments

Overall Architecture

- The app is a Ajax based web application that polls the DB for updates at a fixed frequency
- The DB contains all data about teams, games, plays, etc. The way you interact with it is through the service layer
- The DB receives updates to these data tables from several sources
  - An xml file of stats via ftp from athletics
  - The scoreboard
  - Video capture and stat association

Recommended Gameday Staff and Responsibilities

- 3 People Recommended, although 2 could do it
  - And be suicidal by end of game…
- 3 Person Setup
  - Video Clipper
    - Watches Closed-Circuit TV feed and clips the replays in Final Cut Studio over VNC/ARD
  - Stats/Video Association Person
    - Uses Ajax Association Script to connect a video replay to a stats description of play. If no stats exist, he authors the description
  - Backup/Fireman
    - Does the work of either above when they need a break, and puts out fires (Network Issues, etc)
- 2 Person: no backup/fireman

Gameday Operations Processes

- Database Changes
  - At start of season, you have to set up all games in schedule
  - Change current_game flag in games table in DB
  - Make sure a team entry and icon exist in the DB
- Stats Feed
  - Start Stats Listener script (StatFeedParseDaemon.script)
- Scoreboard Feed
  - Start Scoreboard Listener script (HackDak.pl)
- Video Production
  - Make sure the VCR is on the correct channel, and check ADC
  - Change “Watcher” directory in Final Cut Server console
  - New Project in Final Cut Studio (on fcs.clemson.edu)
  - Final Cut Server Workflow script (sense new video, transcode, copy, name, and insert into DB)
  - Make sure shares are mounted between webapps.itiger.clemson.edu and fcs.itiger.clemson.edu
  - Clipping over VNC, ARD
  - Video Association Script

Gameday Operations Process Schedule

- If you want everything to go smoothly, do the following the day before
  - DB Changes
  - Setup and Test Video Pipe
- If you aren't into that "smoothly" thing, get there AT LEAST 3 HOURS in advance of the game
- On Game Day
  - Start the Scoreboard Listener as soon as the scoreboard is running to check it. It usually does somewhere around 2 continuous 90 minute countdowns before a game. It will do at least one 90 minute countdown
  - Start the stats listener as soon as possible. Usually, the first update will come in around 30 minutes before the game.

Problems

- Network/Hardware Issues
  - Causes and Solutions
    - IP address shifts from CCIT
      - This happened from a mac address limit of three in a new switch CCIT installed in the stadium. We got CCIT to repeal the limitation and issue the correct IP.
    - Boxes Powered down
      - Unplanned power outages common in stadium. Also, Daktronics box is routinely powered down
      - We should consider getting iTiger servers out of stadium, into NOC
    - Wireless Interference
      - ????, to this day, a great mystery. This occurred in Fall 2008, and the cause was never discovered.
    - Stats Feed
      - Software and Hardware problems with the Stats computer. The biggest issue we observed was during the Boston College game of 2009. We didn't have a stats feed for the whole game. This was caused by BC sending a bad xml input file for StatCrew.
    - Hardware Failure
      - Daktronics box died once. Rep came out and replaced computer
    - Network Routes on our Servers. See network description slide.
    - Video Problems
      - Capture problems with ADC, unwired everything and wired back!! Arrgghh!!
- Points of contact for support
  - Daktronics
    - Dan Roy: droy@daktronics.com, support rep
  - CCIT
    - Dwayne Fennell: dfennel@clemson.edu, General Network Implementation for Stadium
    - Brian Parker: bparker@clemson.edu, Network Engineering
  - Athletics
    - Libby Kehn: elizabk@clemson.edu, Stats Computer/Feeds
    - John Seketa: seketaj@clemson.edu, Scoreboards
    - Rick Bagby: rbagby@exchange.clemson.edu, Video Feeds
    - Mike Money: mmoney@exchange.clemson.edu, General Management Level

Hardware

- All Hardware located in Mezzanine communications room at stadium
  - Need to move out of here!! Power, Theft, Limited Access…
- Machines (Location is in stadium, Mezzanine Level, unless otherwise mentioned.) (SEE JIM MARTIN FOR PASSWORDS)
  - webapps.itiger.clemson.edu
    - Username: xtiger1, password: XXXX
    - Apple Xserve, quad core 2.6 Ghz, 4GB RAM, Mac OSX Server
    - Web Server, FTP Server, DB Server, Final Cut Server
    - Where Listeners run
  - fcs.itiger.clemson.edu
    - Username: xtiger2, password: XXXX
    - Apple Xserve, quad core 2.6 Ghz, 4GB RAM, Mac OSX Server
    - Final Cut Studio
  - research.itiger.clemson.edu
    - Username: root, password: XXXX
    - Dell Poweredge, quad core 2.0 Ghz, 4GB RAM, CentOS 5.x
  - dhcp.itiger.clemson.edu
    - Username: root, password: “XXXX
    - Dell Optiplex GX280, P4 3.0Ghz, 4GB RAM, CentOS 5.x
  - rtsp.itiger.clemson.edu
    - Username: “root”, Password: XXXX
    - Dell Poweredge, quad core 2.0 Ghz, 4GB RAM, CentOS 5.x
    - RTSP streaming
    - DNS
  - ltiger.cs.clemson.edu (Location: Network Lab)
    - Username: root, password: “XXXX
    - Sun, Centos 5.3
    - Testing/backups
- Other Equipment
  - VCR (used as ntsc analog tuner)
  - ADC (Analog to Digital Converter)
  - DVD (for testing)

Network Description

- Wireless Architecture
  - Layer 3 security: for redirecting to usage agreement page – really used to allow users to get to the iTiger system seeing only the SSID “itiger” on their mobile device.
  - Rich Folks: the 4 WAPs in the WEZ. These are given a different IP range so the webserver can have a basic indication of where the user is for allowing/disallowing certain content
    - Lots of people in the bowl connect to this, so this does not work as well as we had hoped.
    - IP Range: 10.50.0.xxx-10.50.128.xxx
  - Poor Folks: every other WAP in stadium including concourses, boxes, etc, etc.
    - IP Range: 10.50.129.xxx-10.50.255.xxx
- Network Shares/Services
  - Besides DHCP, DNS, etc.
  - webapps.itiger.clemson.edu
    - ftp service for receiving stats updates
      - user: stats, pass: XXXX(see jjm), stats filename: statfeed
  - fcs.itiger.clemson.edu
    - AFS share, Final Cut Server (on webapps) looks in this directory to see if there are any new videos to transcode

Future Developments

- Service Cluster
- Ordering
- Operations Console