

# APMAX Test Suite & Set Top Box Regression Testing Framework

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# Team and Client

- ▶ Team Silver Redux
  - ▶ Dean Laganieri (Project Lead)
  - ▶ Trevor Mahoney
  - ▶ Teresa Worner
- ▶ Innovative Systems, LLC
  - ▶ Based out of Mitchell, SD
  - ▶ Offer hardware/software solutions for telecom companies
  - ▶ 1200+ systems deployed throughout North America

# Technology

- ▶ APMAX
  - ▶ Telecommunications server
  - ▶ Manage subscriber services
    - ▶ Telecommunication Features
    - ▶ Voicemail Messages
    - ▶ IPTV Services
- ▶ Amino Set Top Boxes (STBs)
  - ▶ Software developed by Innovative Systems
  - ▶ Communicates with APMAX

# Client Problem

- ▶ Testing these Technologies
  - ▶ Currently done manually
  - ▶ Hard to detect regressions
- ▶ Solution:
  - ▶ Test automation
  - ▶ Consistent test setup and test analysis
  - ▶ Results can be compared

# Problem Analysis

- ▶ Phase 1 (Ongoing):
  - ▶ APMAX Test Suite - Internal tool for running tests against the APMAX
  - ▶ Needs finalized
- ▶ Phase 2:
  - ▶ Set-Top Box Regression Testing – Runs tests against Set-Top Boxes
  - ▶ Support for testing the following areas:
    - ▶ Intercommunication
    - ▶ User Interface
    - ▶ Response Times and Latency

# Risk Analysis

- ▶ Risks:
  - ▶ Phase 1 completion/maintenance
  - ▶ Faulty test result information
- ▶ Mitigation:
  - ▶ 4<sup>th</sup> Team Member
  - ▶ Testing the Test Tools

# Backlog

- ▶ Phase 1
  - ▶ Emulator Client
    - ▶ MDI Behaviors
    - ▶ Test Run Wizard (User-Intuitive)
    - ▶ Test Result Analysis (History, Comparisons, Graphs)
  - ▶ APMAX System Performance Statistics
  - ▶ Migrate Smartphone Emulator from Loadtest
  - ▶ End-User documentation (Phase 1)
  - ▶ Requirements document for Phase 2
    - ▶ Test Plan
    - ▶ User Stories

# Client User Stories

- ▶ Phase 2 (Part 1/2):
  - ▶ STBRT Framework:
    - ▶ Preconditions( Guide, DB, Recordings, Series Rules, etc. )
    - ▶ Retrieve Screenshot ( block areas from validation, image comparisons )
    - ▶ Test all Screen Resolutions
    - ▶ Layered Test Setup ( test failure locations – what step, can continue w/ test? )
    - ▶ Test Reporting – Pass/Fail/Comparison

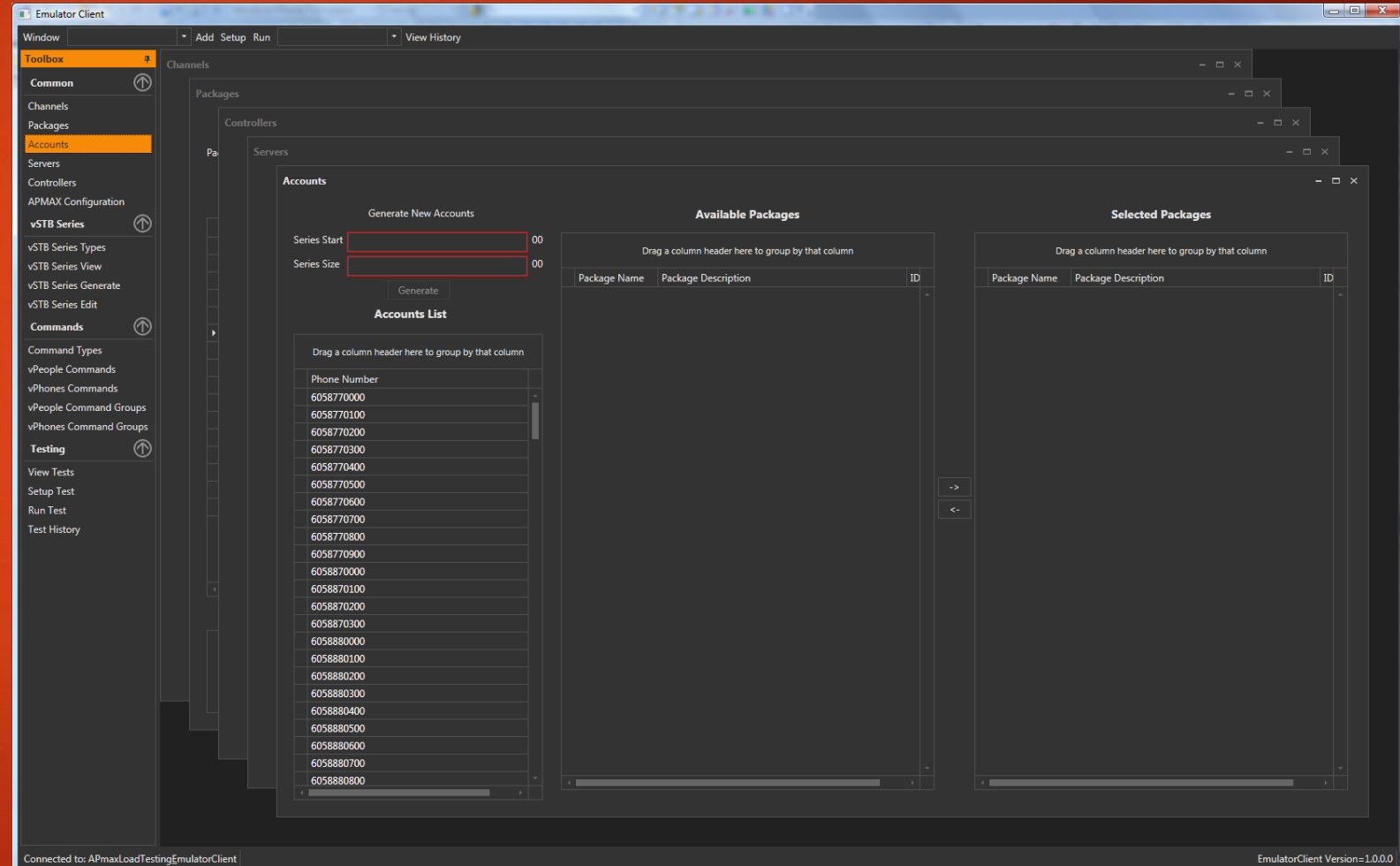


# Client User Stories

- ▶ Phase 2 (Part 2/2):
  - ▶ STBRT Framework:
    - ▶ DB Storage (Design Constraint)
    - ▶ STB Log Level Considerations (Set verbosity high/low, compare logs)
    - ▶ Intercommunication Testing (STB to STB Response times, vSTB vs. RealSTB, Latency)
    - ▶ Guide Database Comparison( APMAX & SI Stream Assembly)
    - ▶ Memory Leak Tests (Real STB)
    - ▶ End-User Documentation

# Design and Architecture

- ▶ Projects
  - ▶ Client
  - ▶ Emulator Controller
  - ▶ Smartphone Emulator + Launcher
- ▶ APMAX Performance Tracking
- ▶ Database
- ▶ Phase 2 Derivations



# Interfaces, Communications, APIs

- ▶ Async CTP (.NET 4.5)
- ▶ Bouncy Castle
- ▶ DB-LINQ
- ▶ JSON
- ▶ LINQ to SQL
- ▶ MSSQL
- ▶ Rx (Reactive Extensions)
- ▶ SQLite
- ▶ WCF (Windows Communication Foundation)
- ▶ WPF (Windows Presentation Foundation)

# Sprint 1 Deliverables

- ▶ Sprint 1 Report
- ▶ Client Contract
- ▶ Mission Statement
- ▶ Started Converting UI Controls to DevExpress
- ▶ Started APMAX Performance Statistics Project
- ▶ Started Smartphone Emulator Launcher

# Budget

- ▶ Hourly Pay
- ▶ Sunk Costs
  - ▶ Dev Environment
    - ▶ 3 Computers Running Windows 7
    - ▶ Visual Studio 2012
  - ▶ Test Environment
    - ▶ 4 TV's
    - ▶ 4 STB's
    - ▶ 2 APMAX (Paired)

# Documents & Deliverables

- ▶ Phase 1:
  - ▶ Software to Mitchell
  - ▶ End-User Documentation
  - ▶ Updated APMAX Test Suite Document
- ▶ Phase 2:
  - ▶ Mission Statement
  - ▶ Project Design Document
  - ▶ Progress Reports
  - ▶ Industrial Experience Report
  - ▶ Design Fair Materials
  - ▶ Code and required libraries/binaries

# Questions