

### Customer

A Russian company is a leader in the development of service delivery platforms for interactive digital television (IPTV, DVB, hybrid, satellite, Internet TV), advanced client applications, user interfaces, set-top boxes, and other innovative solutions for service providers and corporations.

### Project

Basing on the analysis of popular functionality among users of digital set-top boxes, the customer was proposed to include in their device package a WiFi adapter, which would enable wireless Internet connection. The task was carried out as part of quality assurance and product testing services, provided to a customer. The proposal was approved by the customer and moved to a separate project.

### Objective

1. Develop a test plan for a lot of adapters, provided by the customer.
2. Choose and configure an environment for testing the adapters.
3. Develop an algorithm for automated testing of the adapters.
4. Develop a report form for the collected results during testing.
5. Test adapters in case when the set-top box is a client and connects to an access point, as well as in the case where the set-top box is the access point itself.
6. Provide an expert opinion on the quality of customer's adapters, and offer the best option.





### Solution

1. An automated testing algorithm, based on an open source tool Netperf, has been developed in order to select the most optimal WiFi adapter.
2. Each of the 30 adapters has been tested in seven different conditions (at different distances from the access point, in cases of placing set-top box and access point in different rooms, etc.).
3. WiFi adapters connection quality was tested in case when the set-top box is a client and connects to an access point, as well as in the case where the set-top box is the access point itself.
4. Each test consisted of three trials of receiving video / audio streams over UDP and TCP protocols (3 per each protocol) – overall more than 2000 tests.
5. Tests were performed both in the building and in open areas with direct line of sight (at a distance of 50, 100 and 150 meters from the access point).
6. All test results, as well as information on the characteristics of each of the adapters (name, manufacturer, supplier, price, size, specifications, etc.) were consolidated into a specially designed report form, on the basis of which were chosen the best options.

### The specifics of the project

1. A large number of sample adapters were provided, made using different chips, requiring different drivers and settings of the test environment.
2. A huge amount of output data (more than 2000 tests, each involving up to 10 output parameters) required for inclusion in the report and subsequent analysis.
3. Work on an open area (the tests were performed in the building as well as in open terrain – at a distance of 50, 100 and 150 meters from the access point).

### Results

The customer received a detailed and deeply researched report, which reflects the connection quality, all the advantages and disadvantages of the tested adapters, as well as the expert opinion of our department. This allowed the customer to make the best choice and increase user value of the final product.

Operating systems	Windows XP Professional, Debian GNU/Linux
Project management \ issue tracking system	Redmine
Other technologies	TerraTermPro, Putty, MS Excel, netperf
Labor input	1 man-month
Project time	1.5 month