

# Case Study: PC Solution for Mobile Device Data Synchronization (USA)

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**Areas:** PC-Device Interaction, Mobile Device Development, Reverse Engineering, Applications for Devices Testing and QA

**Client:** US-based company (NDA protected name)

**Project started:** 2003

**Current state:** product release each 2-3 month, roadmap for 2 more years.

## Client Profile:

This project was started by an US-based company that decided to enter the new market segment in 2003. The company already had similar product lines and wanted to extend its market presence with one more solution in the arising trend.

## The situation:

This project included a number of inner challenges related both with the technical difficulties and significant project duration:

1. **Data diversity and common GUI.** Mobile device data are heterogeneous, and moreover, different manufacturers provide different device drivers and data formats. The product had to support as wide range of mobile devices as possible (phones, smartphones, etc.) and at the same time provide easy to use and clear to understand common GUI for an average user.
2. **Lack of documentation.** A lot of data exchange protocols are poor or not documented, so deep Reverse Engineering experience was required and was planned to be required constantly.
3. **Frequent updates.** The wide range of supported devices means that the product was to be frequently updated: the new devices appear, the existing families are extended with the new models, systems and platforms are updated. There were two “technology revolutions” since the project had started in 2003: two top platforms were released – Android and iPhone. The solution had to support them.
4. **End-Customer support.** Each end-customer mobile device has its own, almost unique environment: there are slight differences in firmware of the same device model released for different geographical markets, different languages; there are some details in the user settings and custom application set... It is a problem for the end-customer support, as it is hard to reproduce customer bug and at the same time it is very inconvenient to physically send the device to the support service. It meant that the project team had to possess a testing lab with 300+ mobile devices and constantly renew it.
5. **Agile architecture.** Data volumes transferred between PC and mobile device have significantly grown and continue to grow all the time. It required several product architecture redesigns.

Alternative software utilities are provided by each device manufacturer, but such solution has its clear shortcomings:

- ◆ Diversity of software utilities, there should be a separate utility for each device;
- ◆ Lack of functionality in some utilities;
- ◆ Different devices/utilities can have incompatible data formats;
- ◆ Utilities are updated independently.

In 2003, considered market segment was new and growing, there were only several products in it. At the moment, it has grown significantly and it is still very interesting. There are several dozens of similar products nowadays.

## The Problem:

The project discovered to be very challenging in terms of the team.

Consolidated and all-round team of high qualified tech professionals was considered to be the key to success in this project.

Team members had to possess rare skills, in particular intensive Reverse Engineering, C++ and .NET knowledge, work together on the common prototype, and then develop and maintain the solution. To be successful, the product had to have a consistent architecture and robust core, so the company needed really all-in-one team.

Attempts to find a team locally, in USA, failed and the option to compose its own team from the various local or foreign specialists was estimated to be extremely expensive: required skills are very rare and general recruitment costs can reach hundred thousand dollars per person. Moreover, a new team would require some time to learn to communicate and work together, design some common standards and so on, that could result in the too slow market entry.

We were considering different options, calculating and rejecting them on the trot. In a certain period, it looked like we were searching for a Fantastic Four. But we did not want to miss the opportunity.

*The Client CEO*

Occasionally, the company worked with Apriorit on some other products, using services of the small development teams. The Client was satisfied with the provider's responsibility and expertise, so the parts proceeded to discuss the request for proposal for the new big project.

As the project team was planned to work on the long-term continuing basis, Offshore Development Center agreement was concluded.

## The Solution:

All-round team was formed. It includes:

- ◆ Reverse Engineers
- ◆ C++ Developers
- ◆ GUI Developers
- ◆ Business Analysts
- ◆ Graphical Designers
- ◆ QA and Testing Specialists
- ◆ Project Manager.

At the moment, Apriorit team includes 11 Developers, 3 QA and testing specialists, 1 Business Analyst and 1 Project Manager and performs almost all work, except the release acceptance testing, which is performed on the Client side.

Apriorit and Client teams have a shared bug tracking system, where all product feature requests and end-customer bugs are posted.

Agile-based methodology is used with the everyday communication and a new release version developed each 2-3 months.

Apriorit team responsibility is also to monitor the new devices, device models, and trends appearing on the market and add them to the roadmap. Feature requests and some complicated bugs with their priorities are also included. The roadmap is discussed and corrected throughout the year with at least one annual onsite meeting with the Client team.

We really love to work with Apriorit guys. Their researchers make some magic, but what I appreciate the most is their predictability. Reports, chats, discussions, plans – I know I can rely on the team.

*Product Manager, Client side*

Each company that outsources to Ukraine or other FSU country something more than just a PC software project can face the problem of device shipment and customs.

Apriorit managed to solve all the difficulties absolutely legally, raising the standards of openness and having developed the corresponding legal process with jurist assistance. Despite it can cost us more, we always have all our shipments in time and intact.

Another initial problem, already mentioned above, concerned end-customer support. As almost each end-customer device has its own environment, including particular firmware, settings, application combination, some rare model platform versions - it was frequently very hard to reproduce end-customer bug without having the physical devices. This scheme was initially considered to be complicated and costly and offshore development model made it almost impossible.

But Apriorit team managed to convert this offshore outsourcing shortcoming into the benefit. The team developed a specific technological know-how that provided an easy-to-use mechanism of reproducing end-customer environment and end-customer bugs remotely with almost 100% accuracy. No costly and time consuming support schemes – only specific digital “imprint” of the end-customer device environment, and support team is already working on the issue.

## The Impact:

As it was supposed to, the efficient team became the key to success for the project. Fast product release, which had required considerably less costs, helped the company to hit the market and become one of the world leaders in this segment.

The cost of the first year of product development, including the initial one-time cost for team hiring and difference in the professional rates, was estimated to be about 8 times less than the indoor development or onshore US-based outsourcing options.

At the moment, the product is in Top 5 market leaders and is one of the most frequently updated solutions, always up-to-date supporting a wide range of modern, popular, and legacy devices.

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## What's next?

Get the **free estimation** of time and effort for your project! After initial research, we'll provide you with the basic task dropdown and estimates indicating approaches and tools we can use to save your budget.

All we need is a brief project description sent to the [info@apriorit.com](mailto:info@apriorit.com) with “RFP” mentioned in the subject.

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The logo for Apriorit Inc. features the word "apriorit" in a lowercase, italicized sans-serif font. The letters "a", "p", "r", "i", "o", and "r" are green, while the letters "i", "o", "r", and "i" are orange. The "i" and "o" in the second half of the word are slightly taller than the others.