

# ip.access Ensures Quality of 3rd Party Code



“We selected Coverity Prevent because it offered a fast and objective way for our internal development teams to evaluate the quality of outsourced code.”

Jason Cooper  
Software Engineer, ip.access



## ip.access Challenge:

ip.access is a leading manufacturer of cost-effective picocell and femtocell infrastructure solutions for GSM, GPRS, EDGE and 3G. These technically-advanced solutions bring IP and cellular technologies together and solve in-building access problems for mobile operators, opening up new revenue streams while defending existing business.

The rapid adoption by businesses and consumers of this cutting-edge technology has created massive demand for ip.access products. To meet this demand, the company is constantly developing new software features and functionality. A team of more than 60 ip.access developers are responsible for maintaining a steady pace of innovation while adhering to strict quality and security requirements to ensure customer satisfaction.

For flexibility and scalability throughout the development process, ip.access selected an external development partner to produce select code for inclusion in its products. Working closely with this trusted UK-based provider, ip.access has released a number of highly successful and reliable products since the company's inception.

ip.access' flagship nanoGSM® picocells were originally developed based on 2G standards. However, because of the company's success, the development team was asked to create a new and smaller 3G product, the Oyster 3G™ femtocell. Expanding development to support both 2G and 3G standards significantly increased the overall amount of code ip.access was producing.

With more than 3.6 million lines of C/C++ and Java code, development leaders at ip.access recognized that unit tests and manual peer review were becoming too labor intensive to stay on the company's development timeline. Therefore, the company elected to create a continuous integration development process that would accelerate the ability of both internal and external teams to ensure the quality of their combined code. A key component in this process would be the use of static analysis to evaluate code prior to run-time.

## Solution

ip.access selected Coverity Prevent as its static analysis solution because Prevent automatically finds a high concentration of critical software defects with the lowest false-positive rate in the industry. In fact, ip.access reports false-positive rates at or below 5%. Because these analysis results are so accurate, developers at ip.access and its development partner can now avoid a significant amount of time-consuming manual code reviews and

**Industry:** Networking

**Business Challenge:** ip.access is the leader in developing innovative technology for IP and Mobile connectivity. To meet consumer demand for their products, ip.access developers and external development partners need to collaborate to deliver top notch code under tight timetables. With such a rapid pace of innovation, ip.access wanted an objective way to measure code quality early in the application development life-cycle.

**Results:** Coverity Prevent is run hourly to analyze critical code developed internally and externally. It is also used extensively by ip.access' external development partner, who agreed that no outsourced code will be submitted to ip.access until it has zero Coverity defects.

can check in code with greater confidence. “During our preliminary trial process, Coverity Prevent identified 27 ‘must-fix’ defects in our draft code,” said Jason Cooper, Senior Software Engineer at ip.access. “With results like that, selecting Coverity was a quick decision for us.”

Coverity Prevent was installed in less than a day and is now a key component of ip.access’ continuous integration process. As part of this process, ip.access conducts incremental reviews of internally developed code and 3rd party libraries every hour to determine if there have been any updates. If updates have been made, Coverity Prevent is automatically triggered to conduct an incremental analysis of the new code in the system.

ip.access also relies on Coverity Prevent to analyze the quality of externally developed code prior to checking it in to ip.access’ central build system. In one example, ip.access used Prevent to analyze a 700,000-line code base from its outsourcing partner. The analysis results identified some important defects in this code, providing an objective report on the quality and security of this large code base. With this detailed information, ip.access and its development partner were able to work together to eliminate these defects and streamline the overall development process.

## Details

Based on the accuracy of Prevent’s results, the company’s external development partner agreed that ip.access would not be asked to accept externally developed code until it has zero Coverity defects. In addition to identifying defects, Prevent’s analysis results are also used by ip.access and its development partner as a key discussion point for weekly progress meetings, allowing both organizations to monitor the overall progress of multiple shared development projects.

“Delivering a new 3G femtocell product required our combined internal and external teams to deliver over 1 million lines of code. Coverity Prevent helped us ensure code quality between multiple development groups and successfully deliver our new product on time.”

Jason Cooper  
Software Engineer, ip.access

Beyond improving collaboration and efficiency between internal and external development teams, ip.access estimates that its greatest return on investment with Coverity is the most difficult to quantify. According to Cooper, “The greatest saving we’ve likely realized

from working with Coverity is the avoidance of field defects. Because ip.access is creating such innovative technology, there’s literally nothing to compare it to – so analyzing performance prior to run-time is a huge benefit for us.”

Overall, ip.access estimates that Coverity Prevent has accelerated its overall development cycle by 10-15%, a significant benefit for a fast growing company with distributed internal and external development teams.

“We deployed Coverity Prevent ourselves in less than three hours. Since then, we’ve been using cruise control with hourly incremental analysis and full nightly analysis to help our distributed development teams ensure we submit the highest-quality code possible.”

Jason Cooper  
Software Engineer, ip.access

## Conclusion

By leveraging Prevent to analyze externally developed code, 3rd party libraries in addition to internally developed code on an incremental basis, ip.access is able identify and eliminate potential security and quality defects early in the development life-cycle. This in turn enables the development team at ip.access to collaborate with its trusted development partner to consistently deliver high quality code that keeps pace with the company’s continuing growth. A summary of results includes:

- Accelerated development cycles by an estimated 10-15% through proactive static code analysis utilizing Coverity Prevent
- Coverity Prevent delivered highly accurate analysis results, with false-positive rates at or below 5%
- Provided an objective analysis of externally developed code, streamlining the review process between ip.access and its development partner

## About ip.access

Based in Cambridge, UK, ip.access ltd ([www.ipaccess.com](http://www.ipaccess.com)) is a leading manufacturer of cost-effective picocell and femtocell infrastructure solutions for GSM, GPRS, EDGE and 3G. These solutions bring IP and cellular technologies together and solve in-building access problems for mobile operators, opening up new revenue streams while defending existing business. ip.access is the company behind the Oyster 3G™ femtocell, winner of numerous industry awards including the Best Radio Access Product at the 2007 Global Mobile Awards. The Oyster 3G dramatically increases 3G cell capacity and coverage; improves quality of experience; and drives down costs. Oyster 3G is ready for today's mobile networks and tomorrow's IMS infrastructure. The ip.access nanoGSM® is the world's most deployed picocell solution for cellular networks. It provides GSM, GPRS and EDGE coverage and capacity for offices, shops and using satellite backhaul passenger aircraft, ships and in remote rural areas. With more than 30 live networks around the world and many more being deployed, ip.access is the partner of choice for operators competing in the new converged marketplace. ip.access counts Scottish Equity Partners, Rothschild Gestion, Intel Capital, Amadeus Capital Partners, ADC and Motorola Ventures among its shareholders.

## Free Trial

Request a free Coverity trial and see first hand how to rapidly detect and remediate serious defects and vulnerabilities. No changes to your code are necessary. There are no limitations on code size, and you will receive a complimentary report detailing actionable analysis results. Register for the on-site evaluation at [www.coverity.com](http://www.coverity.com) or call us at (800) 873-8193.

## About Coverity

Coverity ([www.coverity.com](http://www.coverity.com)), the leader in improving software quality and security, is a privately held company headquartered in San Francisco. Coverity's groundbreaking technology removes the barriers to writing and delivering complex software by automatically finding and helping to fix critical software defects and security vulnerabilities as software is written. Hundreds of companies worldwide choose Coverity because it scales to tens of millions of lines of code, has the lowest false positive rate while providing 100 percent path and value coverage. Companies like Juniper Networks, Symantec, McAfee, Synopsys, NASA, Palm and Wind River rely on Coverity's tools to find and eliminate critical defects from their mission-critical code.

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