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Creating Trust Online™

White Paper

Identity & Trust Assurance Market Analysis

The next generation technologies to Create Trust Online

2006 ©



The Internet Opportunity Realized:

Identity & Trust Assurance Technologies

Strategic Vision and Plan

The vitality and scope of the eCommerce space

The Internet continues to dramatically change the way consumers purchase goods by fundamentally altering and expanding distribution channels allowing products to be available virtually "anytime and anywhere". In addition, further advances in mobile commerce, broadband, and interactive TV commerce promise to continue to stimulate online growth changing the way businesses and consumers interact.

The strength of online sales continues to outpace growth rates in many other industries. According to Forrester, online sales in 2004 grew an estimated 20% versus 2003. By 2010, online sales will reach \$331 billion and will account for 13% of total retail sales, up from 7% in 2004.

However, a key constraint in online growth is the lack of trust in online commerce, communications and collaboration. Online trust has eroded significantly in the past 24 months as evidenced by a number of recent research studies:

- Approximately 20% of consumers will not do business online at all, (Gartner Research)
- The direct loss to banks resulting from fraud was in excess of 24 billion. (Information Week, 2004)
- Costs related to online consumer fraud resolution are increasing at an annual rate of 10%

This erosion is due to the complex challenge of combating the multi-dimensional character of online ID and fraud threats:

- **Infrastructure threats** that work their way into the topology of the networks as in spear phishing whereby employees are sent email purported to be from a colleague but is in fact from an intruder.
- **External threats** designed to coerce sensitive information from customers.
 - Threats such as phishing and pharming which continue to be erode trust on the Internet because responses to these threats have largely failed. Typical responses rely on dated information which does nothing to protect against new threats.
- **Lack of authentication technologies** on the Internet makes it hard to establish a trusted transaction
- **Business processes vulnerabilities** which expose sensitive data to ID theft through:
 - Faulty back-up or storage practices
 - Processes that fail to verify the identity of the purchaser or the online merchant
 - Fragmented and dispersed business processes to manage customer information throughout the customer's lifecycle.

As a result, there is emerging a new set of tools and technologies to mount coordinated and effective defenses and proactive measures against the multi-dimensional trust threats of fraud, ID theft and online scams. This new class of expertise and solutions, emerging from within Security technologies, is called Identity and Trust Assurance (ITA) solutions.

Business responses to the growing fraud and ID threats to date have largely been ineffective.



Creating trust online™ with Identity and Trust Assurance Strategies

Identity and Trust Assurance: The currency of the Internet

As the Internet matures, businesses are realizing that while much time and attention was focused on securing infrastructure and access, the impacts of fraud on business is now being recognized as the most significant and potentially costly vulnerability to date.

Why? Because without trust ecommerce, communications and collaboration can not take place.

Identity and Trust Assurance (ITA) solutions are designed to address this need because they are centered around establishing trust – for merchants, for enterprises and for consumers. Together, with this technological advantage – businesses of all sizes can establish trust so that the multi-dimensional trust threats are transformed into a trusted online experience.

Identity assurance concerns stifle growth across the entire eCommerce ecosystem

Without an integrated focus on Identity Assurance as a business strategy, the result will be an uncoordinated, unsynchronized, expensive and generally inadequate response to this ever growing problem. Point solution attempts at managing shifting threats are a losing battle because they are only effective against known vulnerabilities.

Therefore, “establishing trust” is a mission critical business process which it requires a supporting set of integrated technologies designed to:

- Protect infrastructure
- Protect transactions
- Protect sensitive data
- Authenticate web content
- Authenticate merchant and user

The impact “lack of trust” has on business:

In 2003, less than 36% of companies in a study conducted by the Ponemon Institute believed that privacy was important to their brand or image in the marketplace. In contrast, by 2005 the study found that 56% of companies now see privacy/ identity management as important to brand, image or long-term reputation, a 20% increase over the past two years.

One can see a direct correlation between the increased business recognition of online fraud and the resultant decline in the rate of ecommerce growth within the last 24 months. The ever more cautious consumer is restricting their behaviour online. As a result, this de-escalation of online sales growth is most significantly attributed to an erosion of trust believed to be inherent in the online experience.



For instance;

End-users lacked trust that:

- They are transacting with a legitimate online business
- The website they are interacting with won't expose their sensitive information to ID theft
- Their personal information won't fall into the wrong hands

Merchant lacked trust that:

- The purchaser or consumer is legitimate and are who they claim to be
- Their infrastructure is able to handle traffic and sales while securing sensitive data

Direct Cost to Business

Online fraud and ID theft issues started to surface broadly beginning in late 2002 and the corresponding cost impacts were far reaching (see Note 2):

- 2004 realized \$2.6 Billion losses due to online fraud – this represents a 37% jump versus previous year and \$700 million more than previous year
- Losses due to fraud range between 1.1% and 2.5% of online sales (totaling \$2.6 Billion):
 - Mid-range companies are hardest hit as companies with revenues of less than \$5 million expect to lose up to 2.5% of its online revenue to fraud compared to 1.9% last year.
 - Larger companies fare better as a percent of revenue – experiencing about 1.1% - 1.5% in lost revenue but the absolute dollar amount is continuing to increase as overall revenue continue to increase
- Business deployed expensive, manual processes to keep up with the onslaught of fraud:
 - Retailers increased the number of orders manually reviewed to 27% average review rate, compared to 23% in 2003
 - Retailers rejected more orders due to suspicion of fraud (average 5.9%, 28% more than 2003)
- Phishing and pharming attacks against banks have hit financial institutions particularly hard:
 - dampening consumer confidence and reducing effectiveness of customer acquisition programs
 - inhibiting ability to convert customers to lower costs online banking alternatives

The Internet has becomes less trusted for commerce, collaboration and communication because identity assurance concerns have exploded across the entire eCommerce landscape – merchants, consumers and financial institutions.



The new business paradigm – “Identity & Trust Assurance” (ITA) Solutions for creating trust online™

Leverage the power of Identity and Trust Assurance solutions to improve business results. The impact of a fraud and ID theft continues to dampen growth as consumers throttle back their online financial/ shopping habits and veer to ever more conservative behavior in their online interactions. This new conservatism coupled with the growing cost to combat fraud provides businesses the opportunity to provide highly differentiated next generation solutions that deliver a trusted internet.

ROI Business Benefits

The central strategic anchor to best practices ITA management lies in **shifting focus from reactive security point solutions to proactive Identity Assurance integrated solutions** encompassed in:

- Mutual authentication solutions that encompass user authenticating web sites and vice versa.
- Proactive tools to diminish the potential for online fraud and ID theft:
 - Enabling pre-transaction verification and validation
 - Reducing the amount of manual interventions required within the online environment to verify customers
 - Increasing order acceptance rate and reducing the overall order rejection rate
- A “Comodo trust databank” called IdAuthority that is recognized as the “clearing house” for all trust related verification, authentication and validation information:
 - Provides information, resources and full disclosure of an website’s “Trust credentials”
 - Streamlining information management processes through integration of the Trust Assurance technologies across the information lifecycle of customers

In this environment, Comodo’s core competency in identity assurance becomes the main platform for differentiated and integrated solutions that provides preventative, remedial and management solutions to all players in the ecommerce field – online merchants, the infrastructure providers and end users.

Direct and Indirect Cost Benefits

- **Hard cost savings** –
 - Reduced operational expenses in procurement of security point solutions through the deployment more efficient management of overall identity and trust assurance customer requirements.
 - Reduced customer support costs related to commerce/ transaction issues, e.g. site legitimacy
- **Risk mitigation** helps business manage the risk should hackers change critical information
- **Increased customer acquisition and satisfaction** improves efficiency of acquisition and retention efforts by providing tools to empower customers to proactively authenticate and protect their digital identities.

ITA Solutions: A business Imperative for focus and investment

As identity assurance requirements cascade through the business marketplace, new investment will be focused on this sector of solutions.

Some market drivers include:

- **Regulatory Compliance:**
 - In the United States, businesses deal with a host of new access control and audit requirements including GLBA, HIPAA, Sarbanes-Oxley, and the USA PATRIOT Act which has significant implications for information security and identity management.



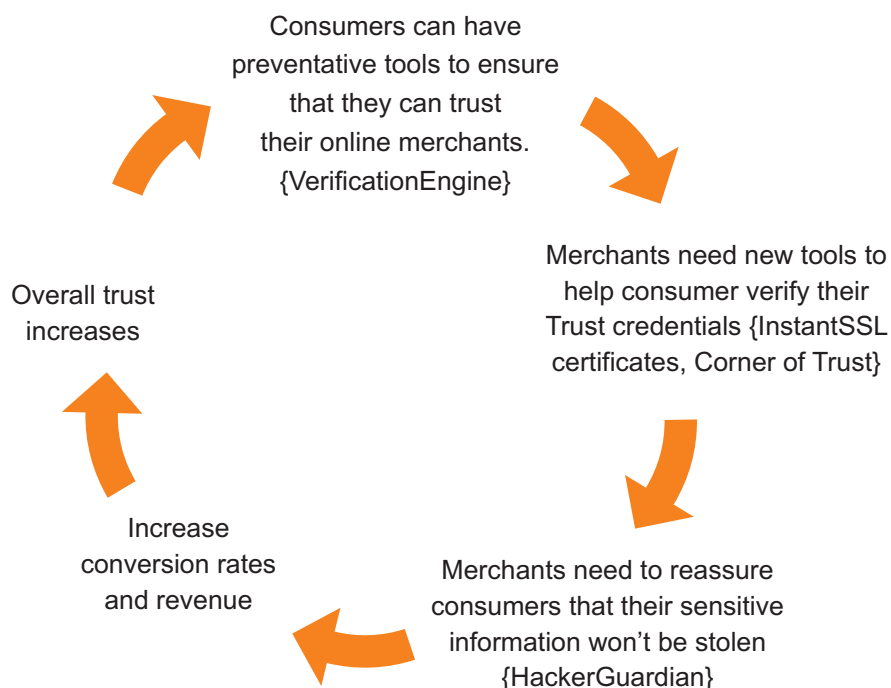
- **Business loss to identity fraud issues:**

- Authentication, access control and audit aspects of identity management infrastructures will continue to be a priority for businesses because without trust communication, collaboration and commerce can not take place.
- There will be increased emphasis on deploying integrated business processes around identity assurance, fraud and ID customer management.
- Reactive, “older” technologies are ineffective and will be replaced by new, proactive technologies and processes:
 - More and more, “older technologies” such as firewalls, access controls, encryption, telephone security, network protection, anti-virus, password protection will be demoted to second tier defensive measures as proactive solutions such as Identity Verification take up the ranks as the first line of defense.
- Increases in sophistication in end-user’s adoption of defenses allows introduction of consumer tools:
 - According to Pew Internet & American Life Research consumer’s online behavior is changing :
 - 91% of consumers have changed at least one behavior to stay safe online and avoid spyware
 - 81% say they carefully screen their emails and do not open attachments from unknown senders
 - 48% carefully evaluate sites before giving their info 25% have stopped downloading music or video files to avoid spyware threats
 - 18% switched to a different web browser they feel is safer from software intrusions

CONCLUSION: Spending on Identity Assurance solutions is increasing because ITA provides a powerful differentiator for best practices companies. Forrester reports that in 2005 36% of North American retailers will increase spending in identity assurance solutions at a rate that's well above other industries. Top priorities include identity/ security network infrastructure, upgrades of revenue producing ecommerce applications and identity/ business intelligence.

ITA eCommerce Engine

With this coordinated approach – an interactive and self sustaining engine can be created





Identity and Trust Assurance Solutions

A new standard for Creating Trust Online

Comodo ITA Solution Overview

Creating trusted ecommerce interactions and communities is becoming a critical business function and platform for growth. Within these communities, trust enables mutual authentication, trusted communications and commerce. Comodo solutions will set the new standard and would allow:

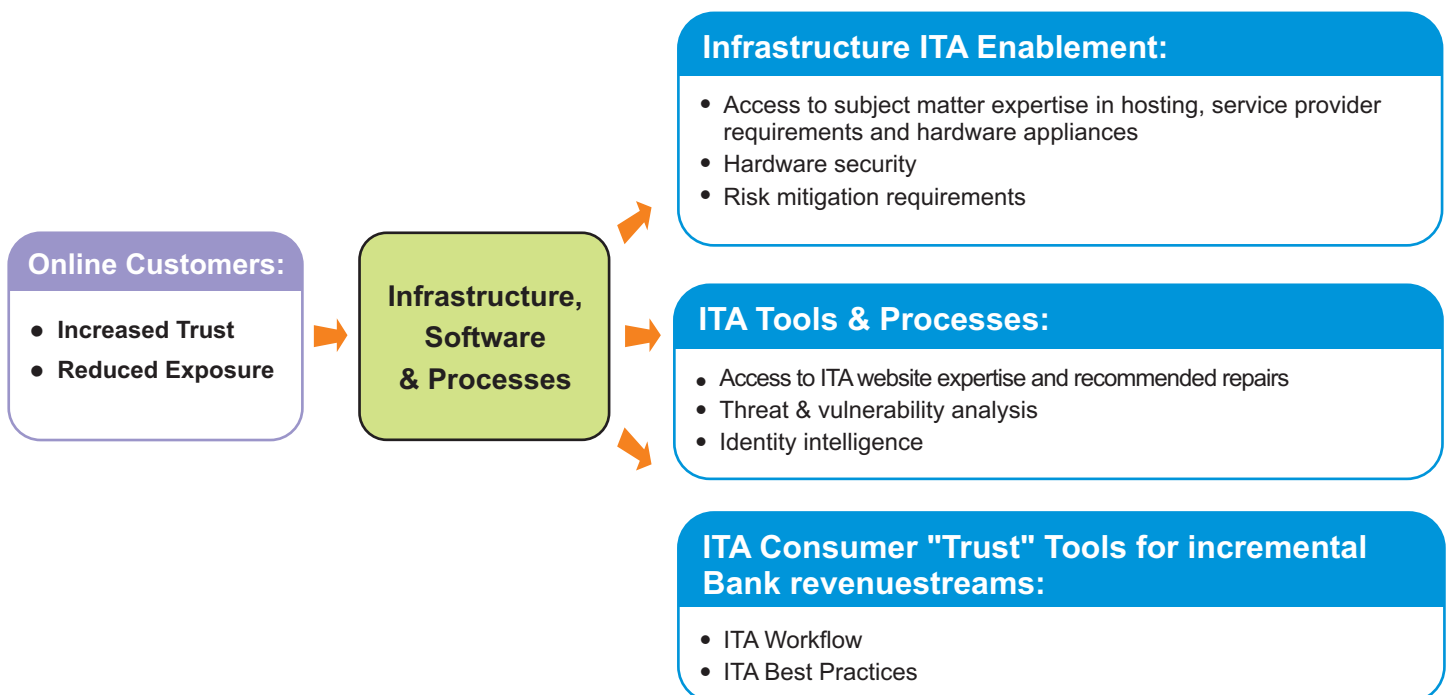
- Infrastructures to support differentiating “Identity Assurance” solutions to their customers
- End-users to trust that they are doing business with a legitimate business and that the website won’t make personal information vulnerable
- Merchants to verify the identity of their customers and be assured that their infrastructure is able to handle traffic and sales while securing sensitive information
- A best practices approach which promotes trust on the Internet
- Mutual authentication – business can authenticate users and users can authenticate the merchant.

To achieve this level of trust assurance involves a fully integrated and synchronized approach to Identity and Trust Assurance whose outcome is an approach that encompasses the technological and “functional” business processes associated with creating trust online.

Integrated Solution Summary:

The solution links are centered on the natural lifecycle of online transactional processes – pre-transaction behavior, mid-transaction process vulnerabilities and post transaction process deficiencies. Each of the “four spokes” is centered on the central column of Creating Trust Online to reflect the customer shopping experience.

Comodo’s solution architecture will focus on preventative, integrated and proactive identity assurance tools, organized into three functional segments.



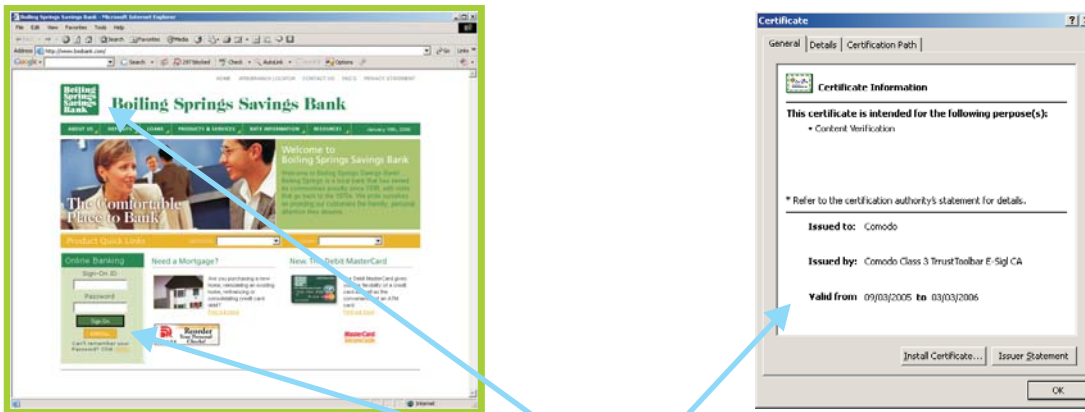


Solution architecture

Trust Assurance competencies will be the fundamental organizing principle for Comodo's ITA solution and includes both Product and Service components. All elements of our solution are configurable to customer strategy, needs and requirements.

I. ITA Product Offerings:

- **Identity Assurance Infrastructure Enablers:**
 - Vulnerability scanning: **Hacker Guardian**
 - LINUX based solutions in the **Trustix Suite** (OS, firewall etc)
- ITA Tools:
 - High Assurance **SSL** certificates to encrypt and authenticate business legitimacy
 - Unspoofable **Corner of Trust** with patented point to verify technology
 - Free merchant vetting and registration in **IdAuthority** world's largest online white lists of authenticated emerchants
 - **Content Verification Certificates**(CVC) binds web content to a digital certificate that can be verified by customers:



Green border indicator URL + CONTENT
 X509 certificate - Logo + Login box verified

- **ITA Desktop solutions for new revenue streams:**
 - **Consumer Revenue Streams:**
 - **ID Protection Services** provides ID theft restoration services
 - **Commercial eMerchant revenue streams:**
 - **Payment Gateway**
 - **All segments: Secure Collaboration:**
 - **TrustFax** (online, web based faxing)
 - **ComodoMeet** an online web conferencing service

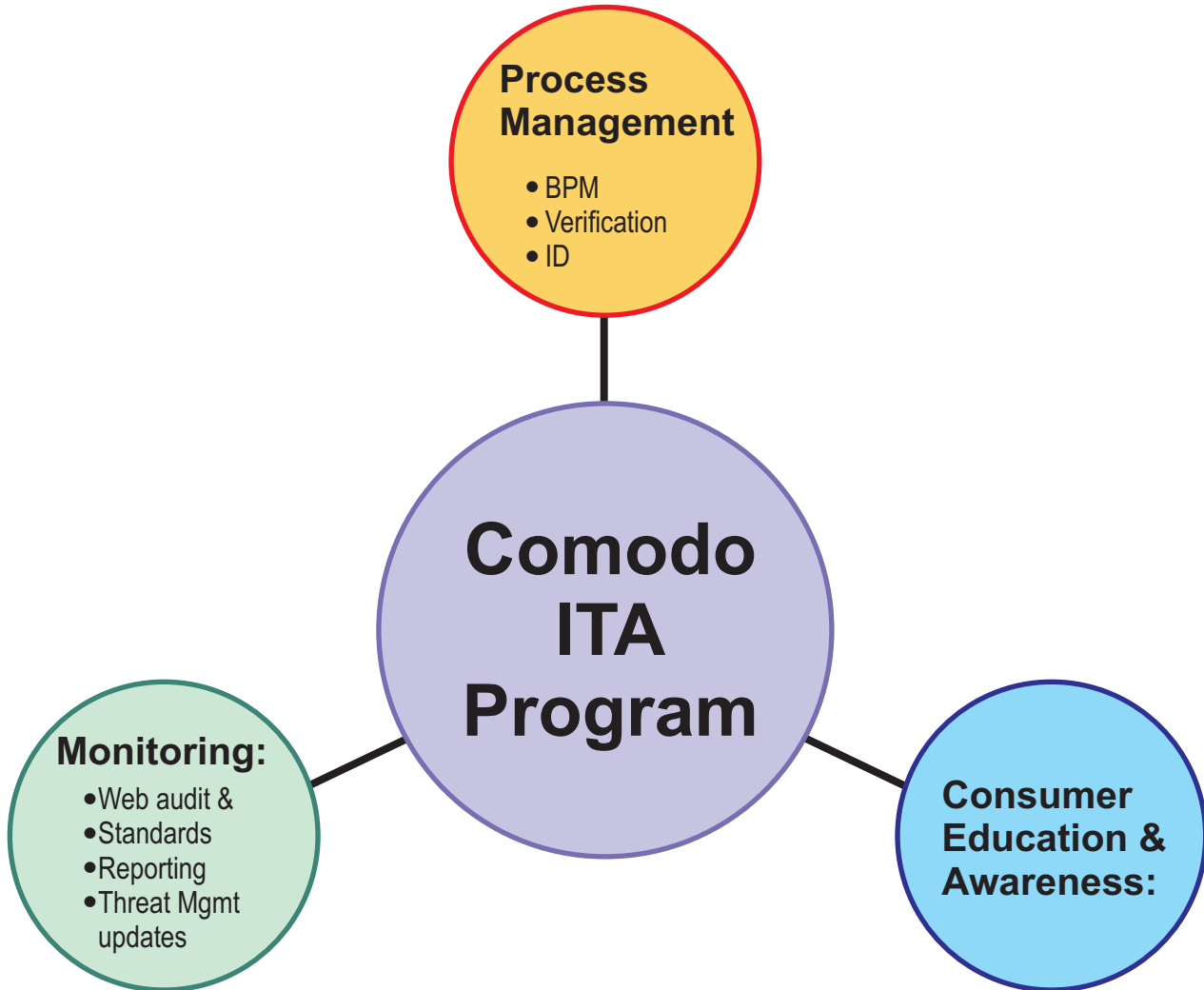
II. ITA Services:

To fully leverage the product offering within the ITA S.A.F.E. Program, Comodo offers our customers a fully integrated services program to support banking customers.



ITA S.A.F.E. Services Architecture

More Value Added Benefits



As a member of the ITA community, Comodo will freely make available to your end users **Comodo Launch Pad** an award winning security suite for consumers that includes:

- FREE personal email certificates
- FREE highly rated personal firewall
- FREE anti SPAM solution
- FREE access to IdAuthority the world's largest online white list of validated websites
- FREE web authentication and verification with VerificationEngine
- FREE password manager called iVault

All products are fully functional and will always be free for the lifetime of the PC.



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About Comodo

Comodo is a leading global provider of Identity and Trust Assurance services on the Internet, with over 200,000 customers worldwide. Headquartered in Jersey City, NJ with global offices in the UK, Ukraine, Norway and India, the company offers businesses and consumers the intelligent security, authentication and assurance services necessary to ensure trust in online transactions.

As a leading Certification Authority, Comodo helps enterprises address digital ecommerce and infrastructure needs with reliable, third generation solutions that include integrated Web hosting management solutions, infrastructure services, digital e-commerce services, digital certification, identity assurance, customer privacy and vulnerability management solutions.

Comodo's credentials in this space include a number of key and highly differentiating factors:

- Comodo is one of the largest certifications authorities – with a global presence
- Technology portfolio of patented Identity and Trust Assurance solutions with state-of-the-art research capabilities powered by Comodo's Digital Trust Lab exploring leading edge authentication technologies and identifying emerging vulnerabilities
- Award winning customer service

Comodo's competitive advantage

Partnering with Comodo gives you new revenue opportunities because your customers need Identity and Trust Solutions to succeed. Comodo's blended, integrated approach allows you to optimize the revenue from each customer because these solutions are essential to help your customers establish trust.

The Best Suite of Branded or Private Branding solutions on the market today!

When you partner with Comodo to offer Identity and Trust Assurance solutions, you are leveraging a space that is a top priority for emerchants. You can resell the largest array of Identity and Trust Assurance solutions with the latest trust technologies - increasing your revenues with your customers. And, unlike many other providers, Comodo backs its solutions with its award winning customer support.

The result? More solutions you can sell them that are proven to generate revenue for them – and for you.

Now you can join Comodo in making the Internet a trusted Internet again with solutions such as:

- High Assurance SSL Certificates - Proving a registered, legitimate business secures private information during transactions
- HackerGuardian TrustLogo - Proving a site secures private information through vulnerability scanning services and TrustLogo
- Content Verification Certificates – Proving the legitimacy of web content by displaying a highly visible green border virtually eliminating phishing and pharming trust threats
- TrustFax – One of the best-featured online faxing services on the market today – with recurring revenue for you

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