

**InfoMentor:
Stabilising web performance in an
e-learning success story**

Ipeer – Quality Server Hosting

Stabilising web performance in an e-learning success story

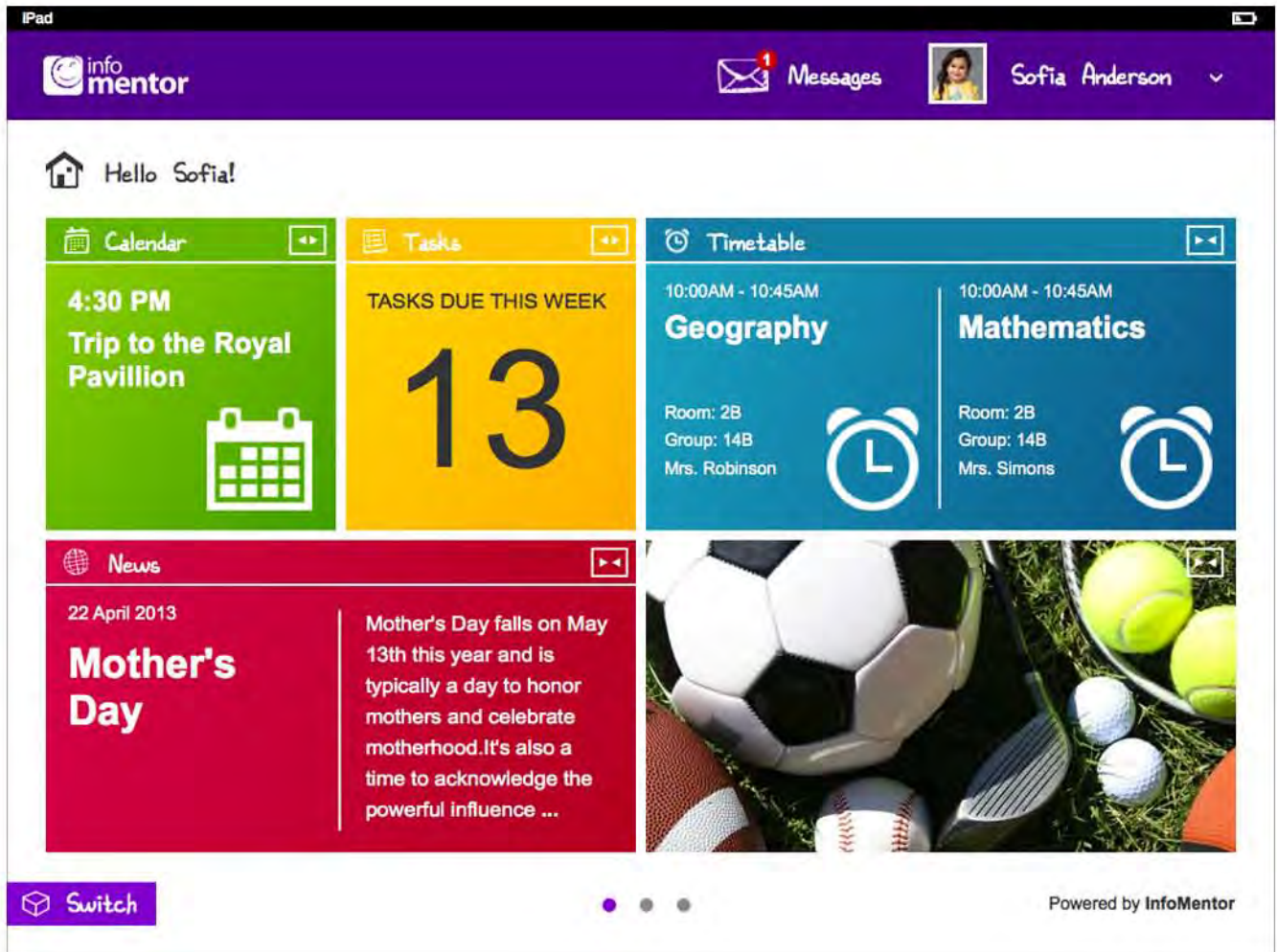
Today, InfoMentor is recognized as one of the top e-learning companies in Europe. But in 2011, as the company had just established itself in three new countries apart from Iceland and Sweden, with datacenters in three countries, the company had some issues with regards to web performance.

The web traffic at the start and end of semesters was huge, and the load-balancing functions did not work as promised. Within the organization, the developers were brilliant but lacked substantial experience of IT-operations. You only get one chance at making a good first impression, and InfoMentor, a brand new player on the important German, Swiss and British markets ran the risk of losing theirs.

Here, Swedish Ipeer, the hosting partner in three of the country markets has studied how InfoMentor responded to the challenge:

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The complete online learning platform



Did your elementary school have a portal? In case it didn't it might have occurred to you that this would have been a good idea. InfoMentor makes you wonder how schools ever got along without one.

InfoMentor provides an online and mobile solution facilitating learning by uniting planning, teaching, assessment, reporting and collaboration functions in one SaaS-platform. Everything you need in one place for a pupil, parent, teacher or head teacher.

Today, teachers in more than 800 Swedish schools can distribute calendars and short- and long term class planning information, attendance data, assessments, recommendations as well as setting grades (the national curriculum as well as the grade criteria are provided in the platform) and sending and receiving notices in the InfoMentor platform. Pupils, parents and legal guardians can access relevant information, report absence and track progress in the same platform, and InfoMentor continues to innovate:



“Having much teaching experience in our organization, we do try new ideas. We re-wrote the complex governmental text of the Swedish national curriculum in a separate magazine, HEJA, to make it more accessible to pupils and teachers. With the help of Swedish academics we also developed an Iphone app for pupils to find their optimal learning style,” says InfoMentor COO Svavar Svavarsson.

Founded in Iceland in 1990, InfoMentor is currently available in 99 percent of the schools there. In 2007 InfoMentor merged with the Swedish company P.O.D.B who had a complementary solution, rapidly gaining the current Swedish market share of 25 percent. From 2007 onwards, the company has had an annual 30-40 percent of organic growth. In 2010 InfoMentor entered the German and Swiss markets, and in 2011 the British one.

The challenge: bigger, better, safer - everywhere

In mid-2011, the rapidly growing mother company InfoMentor had datacenters in Iceland, Sweden and a recently established one in the UK. The Swedish center was handling the data for Sweden and the new markets Switzerland and Germany. Business was handled through subsidiaries

in the different country markets. There were incidents in the web operations and issues with response time and uptime. The instructions from the CEO to the new Quality and Operations Manager Svavar Svavarsson were crystal clear “Make them go away”;

“As a growing company wanting to establish itself in a new market, web performance is really important. If you have uptime or speed issues the situation is not really the one you want to be in when moving forward. Word always gets around, and we had to build our reputation,” says Svavarsson.

The demands on the InfoMentor IT-architecture were considerable. All the private data in the online system had to be absolutely safe: backed up and available through secure login within the SAML 2.0-framework. In Sweden, this was often BankID. InfoMentor had several partners who adhered to the SAML 2.0-standards, but none of them did it the same way. In addition to safely communicating data, users had to be able to upload it in a safe fashion.

The system needed to be able to better handle a seasonal traffic load, with high peaks during weeks at the start and end of semesters, when plans are made and later grades are set. Here load-balancing was one of several problems. The issue was larger than renewing the hosting platform for three datacenters and five country markets, within constrained budgets and under constant fast growth:

“The people at InfoMentor had brilliant developers, but lacked substantial experience of IT operations. The developers did not always consider operational issues when developing new modules for an ever growing customer base. These requirements were stretching the current IT-architecture, and on top of that we were growing very rapidly. What I needed with the help from Ipeer and others was a strategy to get ahead of the ball instead of playing catchup,” says Svavarsson.



A new architecture: power and flexibility

Svavar Svavarsson had an idea. After twenty years within IT, he had ample experience from IT-operations, having worked successfully both as a CEO/CTO of ISP Islandia Internet and CEO of hosting company Skyggvir, among other things.

“I had a pretty good idea of how I wanted this to look, but I didn’t know all the details in all areas and it had to be good. So I consulted our hosting partners, Ipeer and others about solutions, and about their respective suggested solutions. Having a background in that operational field meant that I knew when they were providing good advice,” says Svavarsson.



From dedicated to Hyper-V

In 2011 InfoMentor had grown from one to four dedicated servers and one Oracle database server in the Swedish datacenter. Here, the solution became a transition and expansion into today’s virtual architecture with ten Microsoft Hyper-V servers and an Oracle database. During grade periods in particular, the load on the web servers is considerable and this is handled through the flexible set of Hyper-V servers.

InfoMentor hosting in Sweden



Fig. 1. The Current InfoMentor hosting structure with Ipeer.

“The virtual environment gives us the ability to grow really fast, and shrink again. The Hyper-V:s are copies of each other. We can install a number of new servers within hours so if anything really big happens, we can deal with it. We have an agreement so that during the grade period, we can add an amount of servers and then take them back. During off-season, we can rapidly move part of the production environment and use it for testing without impacting the customer at all,” says Svavarsson.

The Hyper-V servers have other advantages as well. Should one fail due to hardware problems, the processes on it will automatically be migrated immediately to another virtual server. Included in the setup is a complex backup system that has proven to be very stable. The backup is recurrently and exhaustively tested, however it has never had to be used.

Balancing the load on the web servers

Initially, InfoMentor servers used the load-balancing functions Microsoft includes free-of-charge in the IIS. It proved hard to adapt the code in order to arrive at a trustworthy load-balancing solution with this. Fortinet was tried, but in the end it was the premium Big IP F5 load-balancing solution provided by Ipeer that proved to work well.

Cracking the code of operational excellence

The problem of customer code solutions generated that didn't work with the IT-architecture had to be solved:

“I went back to these brilliant .NET, C-Sharp and other language programmers and said ‘Couldn't we do this better?’ When they were challenged in that way, they became very productive. We went back into our system, dug into our code base, made sure we optimized all queries and rebuilt a lot of the front end. We had to reinvent a lot of stuff, both internally and externally, but in the end it became very stable,” says Svavarsson.

To prevent such problems reoccurring, new staging areas have been setup, along with firm routines and procedures for all development and handovers. All concerned in the IT-department of the mother company get notice ahead of time when new customers may arrive in order to be well prepared. Infomentor is now following the ITIL-framework and is set to become fully ISO 27001 and ISO-9000 certified.

Experience 2011-2013

Dedicated expert support - the true differentiator

The new server architecture and methodology has paid off in a stronger and much more stable system. The key differentiator, however, has always been to have a very dependable expert hosting partner when things do not go as planned. InfoMentor has 24-hour access to dedicated technicians and the services of the Professional Hosting-team at Ipeer. Here, a strict and detailed documentation of the entire InfoMentor installation is always kept updated. Server usage levels are continuously monitored.

“Within 18 months from July 2011, the whole hosting platform had been totally renewed. Without taking the system down, in full operation and growth, this has been a challenge. The key thing is that if something breaks down, the trust must be there – and there is a high level of trust between Infomentor and Ipeer. I have the direct number of the concerned technicians, I know I can always lift the phone and get someone on an issue when needed. I feel looked after. I wouldn’t want a hosting partner where this level of trust isn’t present,” says Svavarsson.

When called for, Ipeer has also taken part in meetings with InfoMentor’s customers to demonstrate to them that behind the systems there are expert server technicians dedicated to doing their best for Infomentor.

DDOS-attacks and resistance

During early 2013, InfoMentor was subject to very large Distributed Denial of Service (DDOS) attacks against the IT-infrastructure in Sweden and later, a couple of smaller ones against the infrastructure on Iceland. However the scale was still one that had not been seen on Iceland for the past 2-3 years and noticed by many. In Sweden, the preventive work of Ipeer and partners paid off.

“It was unfortunate that on Iceland we did suffer some minor interruptions, however we did managed to resolve them successfully in cooperation with the local host and ISP. In Sweden, to our delight the operations were hardly affected at all, thanks to the help of Ipeer,” says Svavarsson.

Future: a new level for European education

InfoMentor's platform and business certainly seems to work. During the EdTech Europe Summit 2013 in London in June, InfoMentor was awarded as one of the top three most innovative and fastest growing e-learning companies in Europe. So what about the future?

"Our vision is to bring education in Europe to a new level, with the aim that all pupils should reach their goals. We are working hard to improve and reinvent our systems to be the best possible support for pupils, parents and teachers where ever they are. InfoMentor already has a mobile version, to facilitate for all clients we will implement a responsive design which changes in accordance with screen size. With "InfoMentor home" we aim to provide school content including rich media home in a revolutionary fashion. We will build API:s so that third parties securely can incorporate content after the relevant approvals. Information will be stored differently, and our redundancy will be increased further," says Svavarsson.



Ipeer at a glance

Ipeer is a Swedish provider of cost-efficient, high-quality server- and cloud hosting services of all kinds, from shared to managed hosting. The company is owned and run by the founders who, along with many in the company have worked with company hosting solutions for over 15 years.

Ipeer customers include everything from small companies to banks and large international corporations, Porsche, Vårdapoteket and Svenska Rallyt to name a few. Ipeer originated in Karlstad in 2006, today the company also has offices in Stockholm and Bangalore, India. Ipeer currently has 40 employees and a turnover of more than 50 million SEK (2012).