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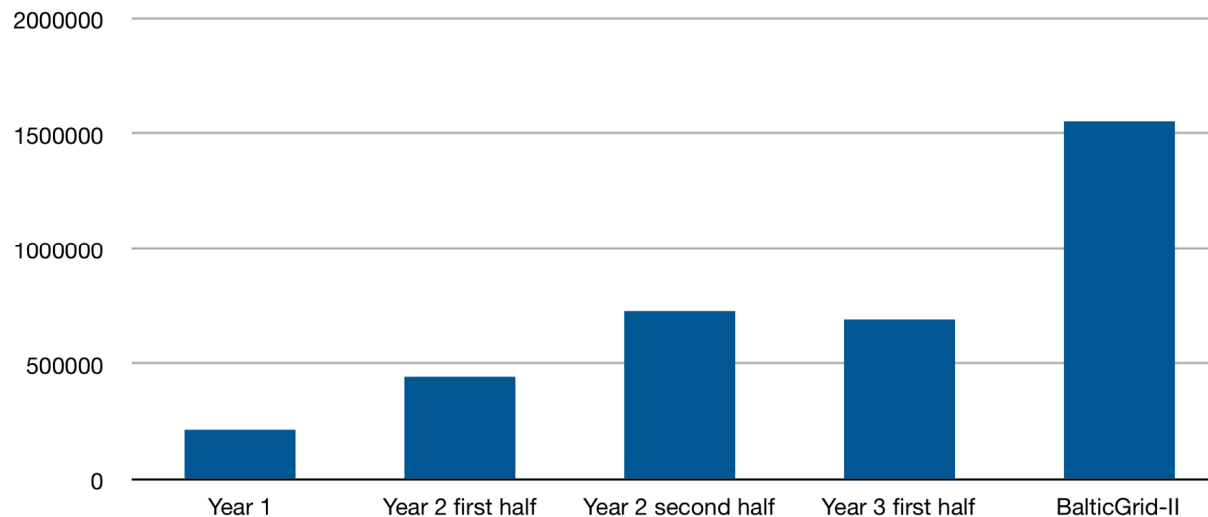
BALTIC CLOUD: REGIONAL CLOUD PLAYGROUND

**Ilja Livenson, NICPB
Technical coordinator of BC**

BASIS

○ BalticGrid II

- Started 1st of May, 2008, duration - 2 years
- Continues the BalticGrid project (2005-2008)
- 13 partners from Baltic States, Belarus, Poland, Sweden, Switzerland
- Financing – 3 MEUR
- Collaborating project for EGEE
- Supporting NGIs and their collaboration



HOW IT FITS TOGETHER

BalticGrid

Planned
activities

BGi - BalticGrid Innovation Lab

SA1-3,
NA1-4, JRA

BalticCloud

Courses

SME
connectivity



MOTIVATION

- Low number of applications and application areas in BG
- Too steep learning curve for the users
- Low acceptance within the industry
 - Almost non-existent collaboration with SMEs
- Problems with adapting new applications
 - Typically, need a “project” for that
- Following the trend



GOALS

- One more, hopefully, easier access point to our BalticGrid resources
- Building cloud-competence in the region
 - Academia
 - Industry



ORGANISATION

- BalticGrid asked one center per country to install a cloud instance
- SNIC (Swedish National Infrastructure for Computing) supported the coordination of the work
- Learning by doing - what's in it for eScience, really? Is industry interested?
- Started information gathering and sharing through our site; went to cloud expos and conferences
- Took early contact with open source cloud vendors, decided to focus on Eucalyptus





USE CASES

- First usage
 - Virtual world installations (Wonderland), for the Immersive Education organization
 - Rendering of animations for an Estonian architecture company



TECHNOLOGY

- Our (main) choice:  Eucalyptus
- Lead by Rich Wolski, UCSB
- Integrated with  **ubuntu**
- Also supported by: **RIGHT SCALE™**
<http://open.eucalyptus.com/wiki/ToolsEcosystem>
- Looking at OpenNebula.org



CONCERNS

- Will the open source alternatives be supported in a satisfactory way?
 - “Not invented here” easily becomes “Not supported here”
- Missing standards for interoperability
 - Vendor lock-in
- Missing features



STATUS OF BALTICCLOUD

BalticCloud

ABOUT PROJECT

AVAILABLE RESOURCES

DOCUMENTATION

BLOG

View Edit

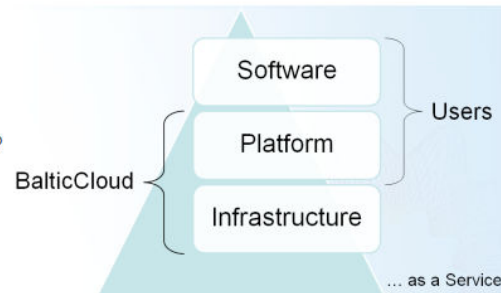
Go!

About

BalticCloud is a subproject of the [BalticGrid](#) project aimed at developing cloud infrastructure in Baltic states and Belarus. The infrastructure is based on open-source solutions and is available for research and teaching activities within the partner states.

As a mid-term goal we also aim at creating and establishing on a regular basis courses on cloud computing (both for academia and industry).

BalticCloud is only in its early stage, hence the site and the activities are very raw at the moment. But we plan to develop quickly, so stay tuned! We welcome any suggestions or comments and are ready to collaborate!



News

- **09.06.2009** - BalticCloud participates as a resource partner in the Estonian [entrepreneurship contest](#) (in Estonian)
- **26.05.2009** - first BalticCloud instance (Eucalyptus) launched in Riga
- **18+25.05.2009** - first cloud computing crash course in the [University of Tartu](#). [Materials](#)
- **23-24.04.2009** - attending [Immersive Education London Summit](#), (remote) talk at ISGC in Taipei
- **21.04.2009** - cloud seminar at KTH
- **02.04.2009** - first BalticCloud instance (Eucalyptus) launched in Minsk
- **30.03-01.04.2009** - Attending the [cloud expo in NY](#), meeting with Eucalyptus and RightScale teams
- **21.03.2009** - <http://cloud.balticgrid.eu> goes online
- **19.03.2009** - first BalticCloud meeting in Tallinn
- **27.02.2009** - first BalticCloud instance (Eucalyptus) launched in Vilnius
- **18.02.2009** - first BalticCloud instance (Eucalyptus) launched in Tallinn

- [About BalticCloud](#)
- [Roadmap](#)
- [Contact](#)
- [Project proposals](#)

BalticCloud Blog

The inconvenient aspect:
July 17, 2009

 [Subscribe now](#)

POWERED BY FEEDBURNER

See <http://cloud.balticgrid.eu>

Contact us




STATUS: UIIP NASB (BELARUS) 1/3

- Installation
 - Xen-based Eucalyptus installation
 - HW: 6 CPU, 24 cores (enough for present tasks);
- Used by UIIP NASB grid team for designing dynamic grid resource reservation and adjustment mechanisms for UNICORE sites



STATUS: UIIP NASB (BELARUS) 2/3

- We have prepared a pilot project proposal on deploying one of the advanced information systems of the State Committee for Science and Technologies of the Republic of Belarus (SCST) into the cloud infrastructure provided by the datacenter of the UIIP NASB.
 - The information system to be cloudified is created and administered on behalf of the SCST by Republican Centre for Technology Transfer (<http://ictt.by>). The system has thousands of visitors and hundreds of active users who regularly post and update their Technology Offers and Requests, disseminate news, upload technology transfer related applications, graphical and video data.
 - The primary goal of the pilot project is proving the concept of cloud computing being a good way to go not only for SMEs but for some governmental agencies as well.
- 

STATUS: UIIP NASB (BELARUS) 3/3

Plans:

UIIP NASB have plans for cloud usage growth, expansion, connection to the outside world and to other countries. [e.g. right now we are buying hardware for the expansion of our cloud infrastructure]

Issues:

To increase cloud infrastructure stability we use custom kernel builds for Xen virtual machine images deployed in the cloud.



STATUS: VGTU (LITHUANIA) 1/3

- Xen-based Eucalyptus installation
- HW: 12 cores

- “Cloud computing” activity is included into LitGrid programme 2009.

- Problems
 - In recent eucalyptus version 1.5.2 the famous error: **“Error 500 message expired”** that prevented graphical tools like Elasticfox, Rightscale, Ylastic, EC2Dream from working with the Eucalyptus instances, was not fixed. Fixed manually.



STATUS: VGTU (LITHUANIA) 2/3

- We have installed and use ElasticFox for Eucalyptus

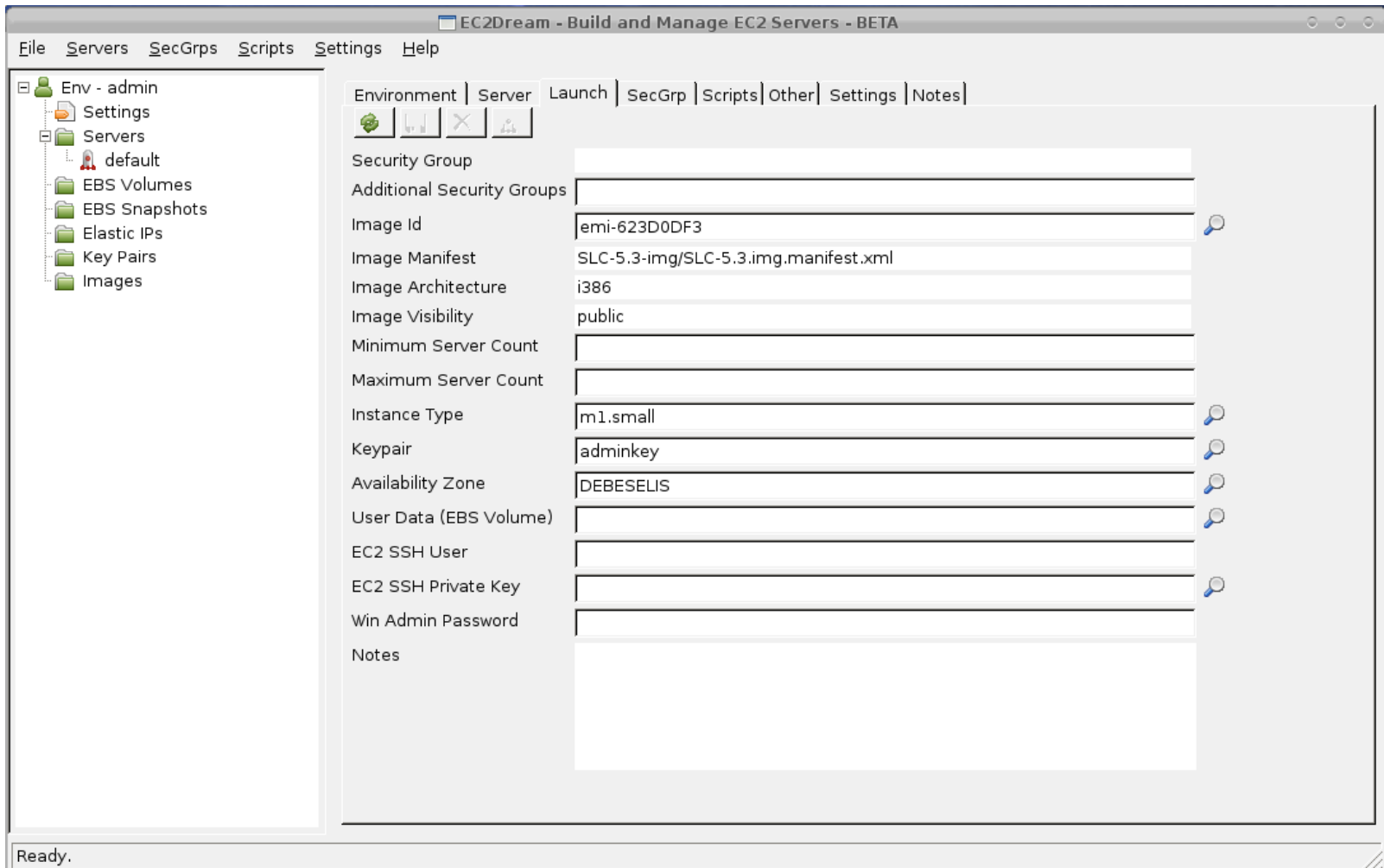
The screenshot shows the ElasticFox web interface for Eucalyptus. The browser window title is "Elasticfox - Shiretoko". The address bar shows "chrome://ec2ui/content/ec2ui_main_window.xul". The interface includes a navigation menu with "Regions" (set to "VGTU Eucalyptus"), "Credentials" (set to "tomaz"), and "Account IDs". The "Images" tab is selected, displaying a table of images. The "Launch Permissions" panel is empty.

ID	Manifest	St...	Owner	Visibility	Platform	Tag	Archit...
aki-5d241617	CentOS-5.3-kernel/v...	ava...	admin	public			i386
ari-9b1f16f1	CentOS-5.3-initrd/ini...	ava...	admin	public			i386
ami-e2621080	CentOS-5.3-img/Cen...	ava...	admin	public			i386
aki-ee8e1491	SLC-5.3-kernel/vmlin...	ava...	admin	public			i386
ari-28f3157c	SLC-5.3-initrd/initrd-...	ava...	admin	public			i386
ami-623d0df3	SLC-5.3-img/SLC-5.3...	ava...	admin	public			i386



STATUS: VGTU (LITHUANIA) 3/3

- We have tried EC2Dream for Eucalyptus management



The screenshot displays the EC2Dream application window, titled "EC2Dream - Build and Manage EC2 Servers - BETA". The interface includes a menu bar with "File", "Servers", "SecGrps", "Scripts", "Settings", and "Help". A left-hand sidebar shows a tree view of the environment structure: "Env - admin" (with a user icon), "Settings", "Servers", "default" (with a user icon), "EBS Volumes", "EBS Snapshots", "Elastic IPs", "Key Pairs", and "Images". The main area features a tabbed interface with "Environment", "Server", "Launch", "SecGrp", "Scripts", "Other", "Settings", and "Notes" tabs. The "Server" tab is active, showing a configuration form with the following fields:

Field	Value
Security Group	
Additional Security Groups	
Image Id	emi-623D0DF3
Image Manifest	SLC-5.3-img/SLC-5.3.img.manifest.xml
Image Architecture	i386
Image Visibility	public
Minimum Server Count	
Maximum Server Count	
Instance Type	m1.small
Keypair	adminkey
Availability Zone	DEBESELIS
User Data (EBS Volume)	
EC2 SSH User	
EC2 SSH Private Key	
Win Admin Password	
Notes	

The status bar at the bottom of the window indicates "Ready." An orange circle is present in the bottom right corner of the slide.

STATUS: PDC (SWEDEN)

Ongoing installation

Preparing to use older HPC resources for cloud
tesbed

STATUS: RTU (LATVIA)

Small Xen-based Eucalyptus installation

Usage

Simple tests

Playground for students

Issues

System is not stable, not ready for production.



STATUS: VU (LITHUANIA)

- **Installation**

- Small Xen-based Eucalyptus installation
- Evaluation of VMware and MS Hyper-V

- **Usage:** Small tests, nothing in production

- **Issues:** Current system is not very stable

STATUS: PSNC (POLAND)

- **Installation:** small Xen-based Eucalyptus installation

- **Usage:** Small tests, nothing in production

- **Plans for usage and expansion:** local users (PSNC developers and research team) and educational institutions in Poznan



STATUS: NICPB (ESTONIA) 1/2

○ Installations:

- KVM-based Eucalyptus installation (40-72 cores)
- VMware installation (1 node, testing)
- “new” ~80 core testbed

○ On-going

- Hadoop FS as a replacement for DPM/dCache
- Large scale graph processing for SNA (Skype)
- Creation of the virtual private networks using Eucalyptus, OpenVPN and dynamic DNS - to be able to provide something like the recently rolled out Amazon Virtual Private Cloud (<http://aws.amazon.com/vpc/>)
- Development of the cloud-based rendering solution in cooperation with 5 estonian companies
- Test deployment of SOLR (open-source enterprise search engine)



STATUS: NICPB (ESTONIA) 2/2

○ Problems

- Eucalyptus sw is still **too alpha/pre-beta**. The 1.6 _should_ be better, incl. support for multiple data centers (availability zones) and more robust operations, but it's not out yet
- Accounting of consumed resources is complicated
- Integration with indentity providers
- Monitoring is complicated
 - Instance
 - Cloud installation
- Necessity to support existing clients ☺
 - CMS, BG



AOB

- BalticCloud was/is used as a platform for cloud courses
 - More on that in the next talk
- BalticCloud participates as a resource partner in the Estonian entrepreneurship contest
- The upcoming Northern Europe Cloud will make use of the BalticCloud
 - More on that in the next talk



WHERE NEXT?

- Connecting the clouds
 - Availability zones (Eucalyptus 1.6)
 - OpenNebula
 - Standards for interoperability
 - <http://www.opencloudmanifesto.org/>
 - Open Cloud Computing Interface (OCCI)
 - <http://code.google.com/p/unifiedcloud/>
- More work on monitoring and stability
- Proceeding with the current activities



LA ÚLTIMA DIAPOSITIVA

What was that all
about?

Thank you!

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