



*Polish Infrastructure
for Supporting Computational Science
in the European Research Space*

Services and Operations in Polish NGI

Marcin Radecki

ACC Cyfronet AGH



Outline

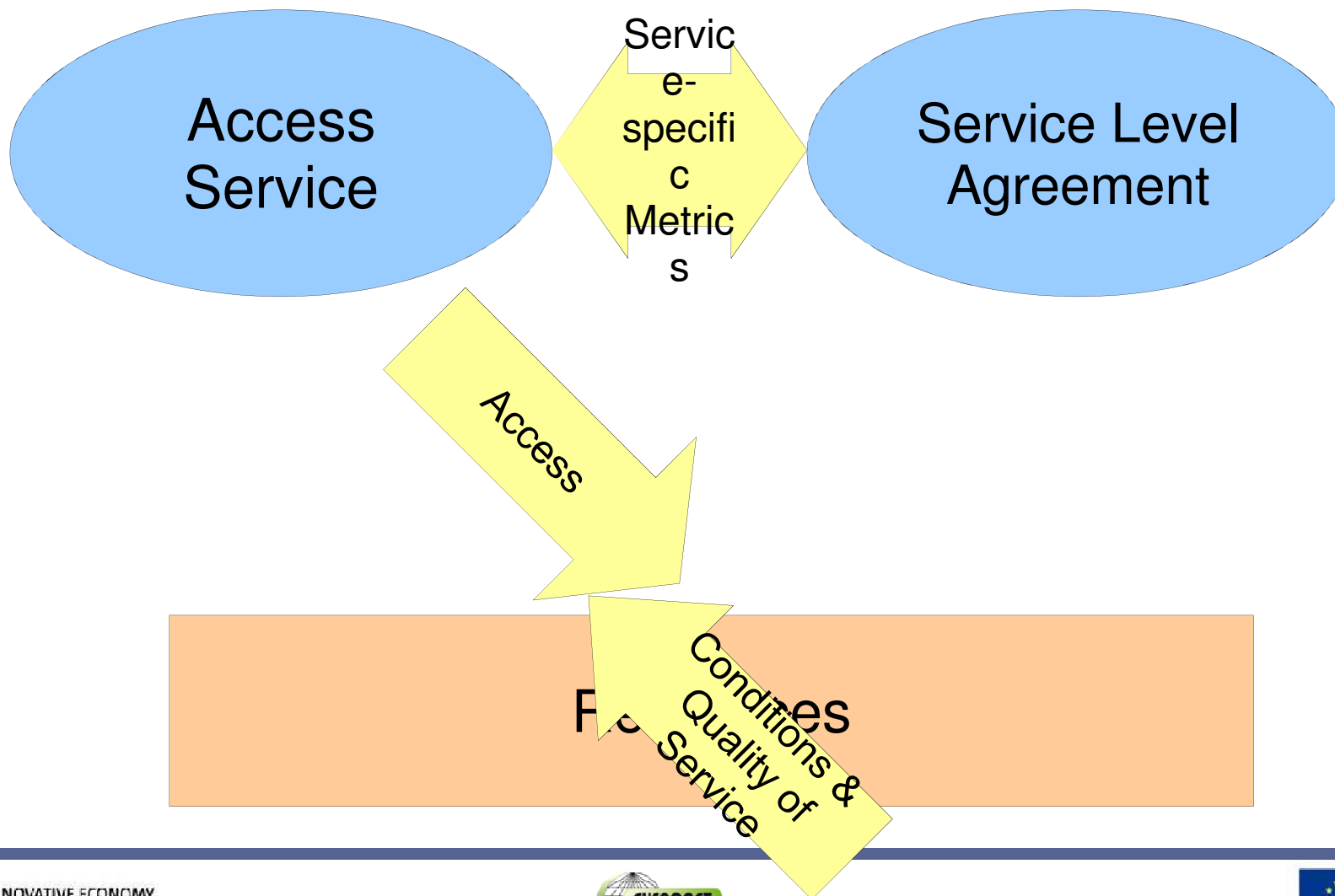
- ◆ Users and Resources
- ◆ PL-Grid Services for Users
- ◆ Stages of Service Use
- ◆ Service Level Agreement
- ◆ User Support



Users & Resources

- ◆ Polish **researchers**
 - ◆ PhD owners – base user group, must confirm affiliation with Polish research institution
- ◆ MSc & PhD **students**
 - ◆ have to find their **supervisor** who confirms collaboration on research subject
- ◆ **International collaborations**
 - ◆ need a collaboration with Polish researchers (similar to supervisor)
 - ◆ international VOs here
- ◆ Numbers (as of 1st Oct):
 - ◆ 648 users
 - ◆ 2.3 Mhours walltime LHC, 1.9 Mhours PL-Grid users (in September)
- ◆ 8 sites, including 5 largest in Poland
 - ◆ ~23k cores
 - ◆ ~2PB
- ◆ Each site has **autonomy** in
 - ◆ resource allocation to users
- ◆ All site resources accessible for **all middlewares**
 - ◆ gLite
 - ◆ UNICORE
 - ◆ QosCosGrid
 - ◆ LRMS

Resources, Access and Guarantees





Stages of service use – user view

1. Become a PL-Grid user
 1. Get credentials - easy, on-line
2. Request service access
 1. User applies for **activating** access to the service
 2. Application is answered by **the service administrator**
 3. Service admin **manages** the activation afterwards
3. Establish service quality level
4. Use
 1. User should be able to observe service **status** and current **usage**
 2. Overuse should be punished (fairness to others)
5. Account
 1. User accounts for usage



Become a User: getting credentials and access

- ◆ **User = person registered in PL-Grid User Portal**
 - ◆ PhD in Polish Science Database
 - ◆ Active affiliation – a phone call to institute
 - ◆ **Credentials**
 - login/password equivalent to personal certificate where possible
 - on-line Certification Authority supported only in PL-Grid services
 - user applies for **personal certificate** from User Portal – user in portal is already **verified** during registration process
 - no need to show-up in person at somebody's office
- ◆ **Access Services**
 - ◆ Global access to: gLite, UNICORE, QosCosGrid
 - ◆ Local access to:
 - LRMS,
 - MySQL,
 - GPGPU,
 - vSMP,
 - User Interface – instance at each big site, all middlewares



Lesson learnt 1: one place to manage access to all services – User Portal is a must

[Chcę wygenerować certyfikat SimpleCA](#)

Zarządzanie certyfikatami

Portal pozwala na zarejestrowanie certyfikatów wystawionych przez Polish Grid CA i Simple CA

W przeglądarce wykryto następujący certyfikat użytkownika:

CN=plgradecki,CN=Marcin Radecki,O=CYFRONET,O=Użytkownik,O=PL-Grid,C=PL

Portal pozwala na zarejestrowanie certyfikatów wystawionych przez Polish Grid CA i Simple CA

W Portalu zostały zarejestrowane następujące certyfikaty:

Autologin	DN	Serial	
<input type="checkbox"/>	CN=Maciej Pawlik-nagios,O=Cyfronet,O=GRID,C=PL	243a	
<input type="checkbox"/>	CN=Pawel Wolniewicz-nagios,O=PSNC,O=GRID,C=PL	246d	

Moje dane

Imię	Marcin
Nazwisko	Radecki
Login	pigmonitoring
Obywatelstwo	polskie
Pesel	
E-mail	
Telefon	

Nazwa	Status	Strona z Informacjami
Globalny dostęp glite	Aktywna	Informacje
Globalny dostęp QosCosGrid (Dostęp testowy)	Aktywna	Informacje
▶ Dostęp do QCG - PCSS	Aktywna	Informacje
▶ Dostęp do QCG - TASK	Aktywna	Informacje
▶ Dostęp do QCG - WCSS	Aktywna	Informacje
▶ Dostęp do QCG - Cyfronet	Aktywna	Informacje

Usługi dostępne

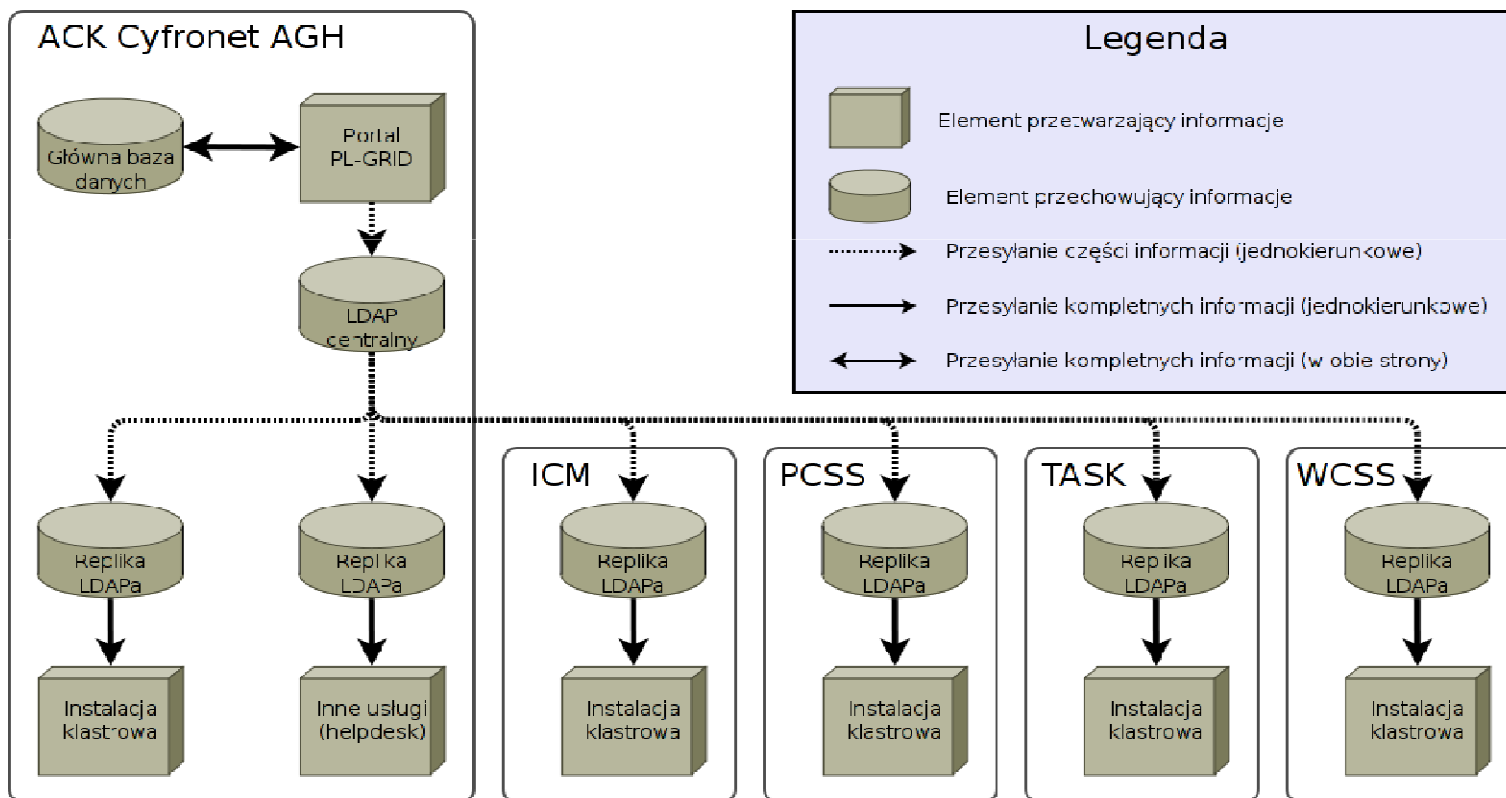
Nazwa	Zasług	Status	Strona z Informacjami
Dostęp do klastra ZEUS	ACK	Aktywna	Informacje
Dostęp do UI glite - Cyfronet	ACK	Aktywna	Informacje
Dostęp do UNICORE	ICM	Aktywna	Informacje
Dostęp do UI glite - ICM	ICM	Aktywna	Informacje
Dostęp do klastra RFFF i UI glite - PCSS	PCSS	Aktywna	Informacje
Dostęp do UI glite - TASK	TASK	Aktywna	Informacje
Dostęp do UI glite - WCSS	WCSS	Aktywna	Informacje

Aplikuj o usługę

Nazwa	Zasług	Usługa nadrzędna	Akcje	Strona z Informacjami
Dostęp do MySQL - Cyfronet	ACK	(brak)	Aplikuj o usługę	Informacje
Dostęp do GPGPU	ACK	Dostęp do klastra ZEUS	Wypełnij motywację	Informacje

Lesson learnt 2: pass authz info to service

- ◆ Pass access info from central point to the service, securely, reliably
 - ◆ what if the central database does not work
 - ◆ what if it desynchronizes



SLAs for users

- ◆ Why? – to build relation between Provider and User
 - ◆ Provider need to **know users expectation** – necessary for resource use planning
 - ◆ User need to share their plan to get **any guarantees** on what they want – more guarantees more user satisfaction
- ◆ What is needed?
 - ◆ **SLA negotiation system**
 - Research objectives, expected results
 - Resources - dates, amounts, **additional services** etc.
 - Review - SLA evaluation
 - a committee who gives **recommendation**
 - support decision at sites
 - ◆ Resource Allocation – setup of a site according to SLA
 - ◆ Resource use monitoring
 - observe use, make sure agreed tresholds are met, block if overuse
 - ◆ AND accounting
 - in terms of research: scientific papers etc.
 - in terms of resources



SLAs as implemented in PL-Grid

- ◆ Two types of SLAs depending on size of requested resources
 - ◆ Personal SLA – testing, trying – 6 months, 1000h walltime, 40GB
 - ◆ Regular SLA – intensive computing here
- ◆ SLA Proposal
 - ◆ Research descr. - User Portal
 - ◆ Req. resources - Bazaar
- ◆ Review – User Portal
- ◆ Negotiations - Bazaar
- ◆ **Resource Allocation – Bazaar Site Admin Toolkit**
 - ◆ takes SLA data from Bazaar and generates site scheduler config, run daily
 - ◆ site administrator retain full control over their services
- ◆ Accounting – User Portal
 - ◆ each 6 months a short report
 - ◆ final report after SLA finishes



grid resource

BAZAAR

New call Date scope: Start: 11/11/2009 End: 31/09/2009 Set

Actions & logs

Date	Topic	SLA	See	Det.
2009/10/2	Tomasz Szebeniec (CYFRONET) proposed a new SLA	15	1	1
2009/9/22	Tomasz Kukulka (Iakiss tel) proposed a new SLA	18	1	1
2009/8/2	Tomasz Szebeniec (CYFRONET) accepted SLA change offer	10	1	1

Log

2009/10/1 Tadeusz Szymocha (FJ-FAN-BG) proposed a new SLA

Chart section - CPU & STORAGE Chart options

Number of cores/CPU

Storage space (GB)

List of calls

Call name	VO Name	CPU	Stor.	Comp. Start	Comp. End	ACL Start	ACL End
alice call	alice	60	60	8/9/2009	5/30/2009	8/1/2009	9/1/2009

List of SLAs

ID	Site Name	CPU	CPU BE	Stor.	Stor. BE	Comp. Start	Comp. End
359	BMEGrid	0	21	0	2	8/9/2009	9/3/2009
367	BUDAPEST	0	150	0	52950	6/1/2009	4/30/2010

Edit Report MISCONFIGURED

Basic information

Related call: 425, alice call
 VO Name: alice
 Computation Period: 2009-06-01 - 2010-04-30
 States: Main: AGREED Activity: ACTIVE Configuration: PREPARED

Responsible person: Walorzata TomaneK
 Description: Agreement registered according to BDI status from 1.06.2009

Resources

Estimated: cores/CPU[No]: 1 stor. space [GB]: 1
 Best effort: cores/CPU[No]: 150 stor. space [GB]: 52950

SLA edition: SLA no. 367

Best effort:

Number of CPUs: 150
 Storage: 52950 GB
 Comp. start date: 18/1/2010
 Comp. end date: 30/4/2010
 Unspecified end date
 Description: Agreement registered according to EDII sla.us from 1.06.2009

Services

YOMS: 33
 LFC: 44

Top BDI Level:

RR/WMR:

Notification:

SLA Monitoring

- ◆ **Computing resource use** monitoring system
 - ◆ similar to APEL, but...
 - ◆ notion of SLAs - match jobs as being executed within specific SLA
 - ◆ notion of middlewares – match jobs as being executed within specific mware
- ◆ Job matching – user must declare
 - ◆ during submission – e.g in JDL
 - ◆ „default” SLA declared in Portal – all jobs account on this if not specified else
- ◆ SLA-awareness in gLite, UNICORE, QosCosGrid
 - ◆ UNICORE – under development (XSEDE requirement)
 - ◆ gLite – requirement submitted: EGI RT #2983
 - temporal workaround:
use VO_TAGS
- ◆ Show consumed resources per SLA in User Portal
 - ◆ walltime, number of jobs, site – daily stats.

Zużycie zasobów użytkownika			
Ośrodek	Data ostatniego podsumowania	Liczba zadań	Zużycie zasobów (h)
Cyfronet	2011-10-19 03:35:49	74	39
ICM	2011-10-19 03:35:52	23	2
PCSS	2011-10-19 03:35:48	29	5
TASK	2011-10-19 03:35:47	12	2
WCSS	2011-10-19 03:35:51	7	0



Service Monitoring

- ◆ **EGI Service Availability Monitoring (nagios) good but PL-Grid needs more**
 - ◆ More detailed probes for WMS
 - ◆ gLite User Interface monitoring
 - ◆ Monitoring of PL-Grid-specific services
- ◆ **PL-Grid specific services**
 - ◆ Developed within PL-Grid project
 - ◆ Deployed using a PL-Grid Service Deployment procedure
 - operational and security audits
 - developers need to provide nagios probes and support team
 - ◆ Registered in GOCDB as „CUSTOM_SERVICE”
 - ◆ EGI SAM nagios tuned to generate PL-Grid specific nagios configuration
 - ◆ Own probes, separate nagios instance – all are „*operations tests*” for PL-Grid
 - ◆ Alarms displayed in Operations Dashboard – credits to CNRS team :-)
 - ◆ **Scientific Application Monitoring**
 - All applications deployed using Scientific Application Deployment procedure
 - Must support **Modules** soft. – common way to access an application at all sites
 - users' side: **module add gamess**

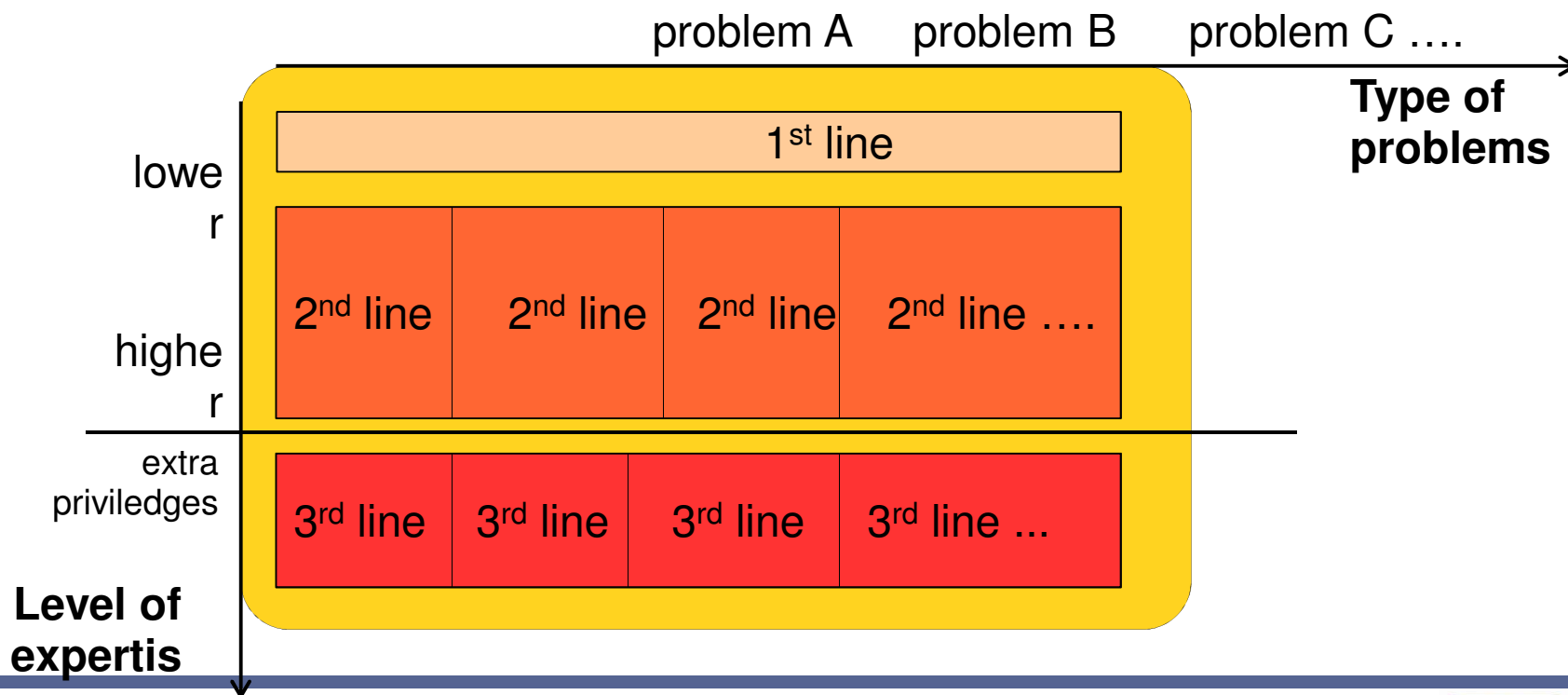


User Support – Tasks and Tool

- ◆ Tasks: not only solving issues
 - ◆ install needed scientific applications, other software
 - ◆ deploy a service requested by users
 - ◆ porting user's applications
 - ◆ trainings at user's institute
- ◆ Tool: Request Tracker tuned to suit our needs
- ◆ Our adaptations
 - ◆ new support units
 - scientific applications, operator, PL-Grid developed services
 - ◆ custom views for support teams (e.g. 1st line support)
 - ◆ tuned ticket flow (ready_to_solve – new status)
 - one team responsible for contact and satisfaction of a submitter
- ◆ Tool used by many project procedures
 - ◆ easy to track progress

3 lines of support

- ◆ **1st** – responsible for contact with Submitter, ensure their satisfaction, finding the facts, try to solve the issue based on **FAQ**, coordinators of FAQ evolution
- ◆ **2nd** – try to solve the issue based on tools available to the user and their **expert knowledge**. Domain expert. Contacts with user if necessary.
- ◆ **3rd** – try to solve the issue in steps that require **extra privileges** e.g. to modify the service, restart, or access to information not available at 1st and 2nd line





Thanks for your attention!

