



NEXT
GENERATION
.NET CLOUD
COMPUTING
COMPANY

Manjrascript

Innovative Solutions for
Life Sciences Sector

ANEKA

Next Generation
Enterprise **.NET**
Cloud Computing
Platform

ANEKA in Life Sciences:

Drug Design, Medical
Imaging, Modular &
Quantum Mechanics,
Genomic Search, etc.

Maximise ROI on underused assets

- Leverage idle hardware
you already own

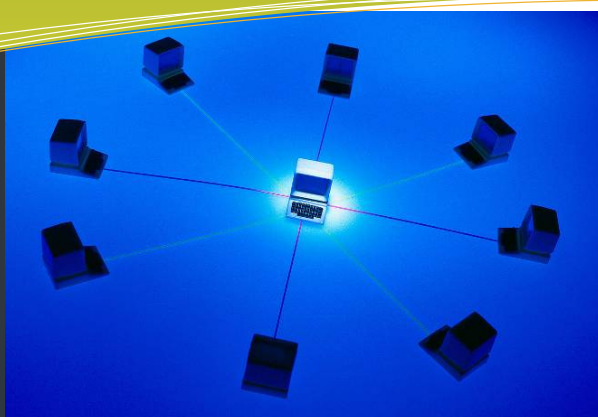
Higher Productivity

- Simulations take hours
instead of days to
complete
- Speed time to market
by doing parallel and
multiple simulations

Improve Quality and Precision

- Analysis expansion for
clinical and protein data

Solution
Is
ANEKA



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Introducing Manjrascript Pty Ltd

Manjrascript Pty Ltd is a start-up
business focused on developing Next
Generation .NET-based Cloud
Computing technologies that ultimately
save you time and money.

What else do we do?

- Develop flexible and scalable
Building Blocks that are central to
Cloud Computing platforms.
- Develop software optimised for
networked Multi-core computers to
accelerate applications.
- Provide Quality of Service (QoS)
and Service Level Agreement
(SLA)-based management
solutions enabling application
scheduling, dispatching, pricing,
accounting for enterprise and/or
public network computing
environments.

Introducing Aneka

The first of Cloud Computing
technologies being commercialised is
“**ANEKA**”, which is a proven platform
for .NET-based enterprise Cloud
Computing.

ANEKA is a patented (PCT pending)
Cloud computing technology building
block that enhances:

- **Applications development** through
a support for **rapid creation** of
legacy and new applications using
innovative parallel and distributed
programming models.
- Ability of organisations to **harness**
computing resources within an
enterprise for **accelerating**
execution of “compute” or “data” -
intensive applications.

Meet the CEO



Dr. Rajkumar Buyya

CEO – Manjrasoft Pty Ltd
Director, GRIDS
Laboratory, University of
Melbourne, Australia

Dr Buyya is:

- **Globally recognised** as a thought leader in Utility and Distributed Computing.
- **Over 15 years experience** in research, design and development of high-performance distributed computing systems.
- Received the **2009 IEEE Medal for Excellence in Scalable Computing**, IEEE Computer Society TCSC, USA.
- For Life Science or other Opportunities, contact Raj at: raj@manjrasoft.com

ANEKA

Your choice
for Enterprise
.NET
Cloud Solutions



ANEKA provides a set of services that make enterprise cloud construction and development of applications as easy as possible without sacrificing flexibility, scalability, reliability and extensibility.

The key features supported by **ANEKA** are:

- A configurable and flexible execution platform (container) enabling -
 - pluggable services;
 - security implementations - multiple authentication / authorisation mechanisms such as role-based security and Windows domain-based authentication;
 - multiple persistence options including RDBMS, SQL Express, MySQL and flat files;
- SDK (Software Development Kit) supporting multiple programming models including –
 - Object oriented thread model,
 - Task model for legacy applications
 - Map Reduce model for data-intensive applications
 - Custom tools such as Design Explorer for parameter sweep studies
- Easy to use management tool for SLA and QoS negotiation and resource allocation.

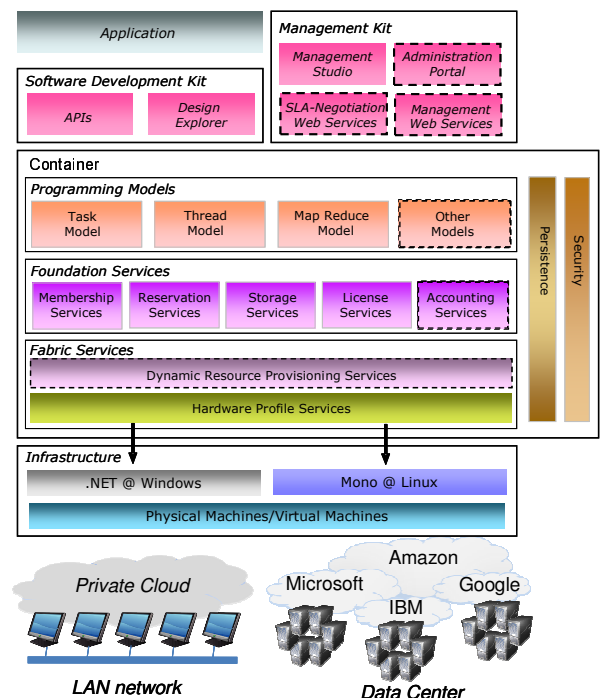
Introducing the **ANEKA** PLATFORM

ANEKA – the first choice for flexible, extensible .NET enterprise Cloud application development and deployment.

ANEKA allows servers and desktop PCs to be linked together to form a very powerful computing infrastructure.

This allows companies to become energy efficient and save money without investing in greater numbers of computers to run their complex applications.

Typical customer environments include:
CAD, 3D Rendering, Drug Discovery, Life Sciences, Investment Risk Analysis and Data Mining.



ANEKA TECHNICAL OVERVIEW

Model choice

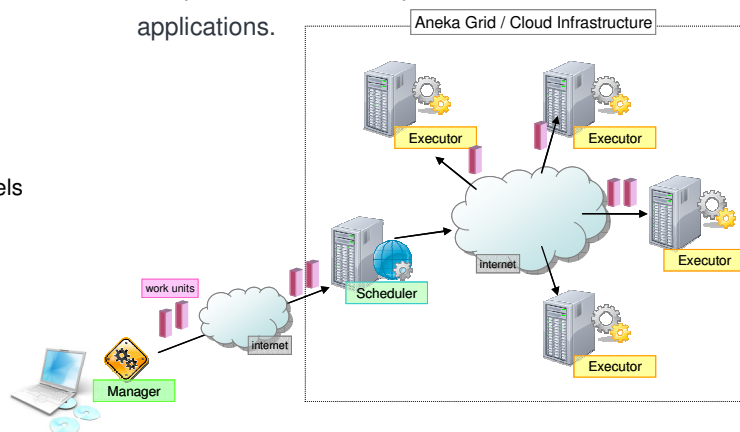
ANEKA offers four programming models which are closely aligned to many business and scientific applications, and also offers the unique ability to add more models as required.

Chose from:

- Aneka task
- Aneka thread
- Map Reduce
- Custom Models

ANEKA is built on a decentralised architecture. Each **ANEKA** node consists of a configurable container which includes information & indexing, scheduling, execution and storage services. **ANEKA** supports multiple programming models, security, persistence and communications protocols.

ANEKA provides a flexible and extensible environment which runs multiple applications simultaneously and supports complex models and dependencies within those applications.



EYE ON IT

Current Industry Trends

“The clouds are gathering”

Nearly every major technology vendor, industry player and academic institutions have signalled or released a cloud computing offering . At Manjrasoft we believe that most large corporate, ISVs and Services providers require both reliable and scalable technologies in a cloud environment.

ANEKA is a product that meets this need – Try it and See!

“Everyone is talking Clouds”

Who isn't talking clouds? The hype around cloud computing is growing. At Manjrasoft, we believe that cloud computing is here to stay. Many are building enterprise clouds.

Enterprise Cloud Technology Tips

Q: Many of the grid & cloud products only support Linux – what can I use on my Microsoft based systems ?

A: ANEKA is the first .NET-based enterprise cloud computing platform that supports multiple programming models. With most corporates using Windows-based PCs as desktops, a .NET-based solution enables you to seamlessly integrate your desktops with enterprise grid/cloud systems.

If you are looking to develop new .NET distributed computing applications or cloud/grid enable your legacy .NET applications, ANEKA is the product for you. Using ANEKA's DesignExplorer, a corporate developer, a software vendor or a services provider can quickly turn legacy applications into cloud/grid applications. This build and deploy model allows the user to take advantage of the scalable and reliable grid / cloud computing environment provided by ANEKA.



SDK License Available

Multiple programming models, including Thread, Task and Map Reduce available on one ANEKA platform.

GET ANEKA SOFTWARE

Manjrasoft is seeking interested parties to:

1. Build applications using Aneka (ISVs)
2. Make use of Aneka for speeding up execution of applications (end users).
3. Build Commercial relationships and joint Go-To-Markets.
4. Discuss investment and business opportunities.

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Generic Life Science Areas to use ANEKA include

Drug Design, Medical Imaging, Modular & Quantum Mechanics, Genomic Search, etc.

Benefits

Maximise ROI on underused assets

- Leverage idle hardware you already own

Higher Productivity

- Simulations take hours instead of days to complete
- Speed time to market by doing parallel and multiple simulations

Improve Quality and Precision

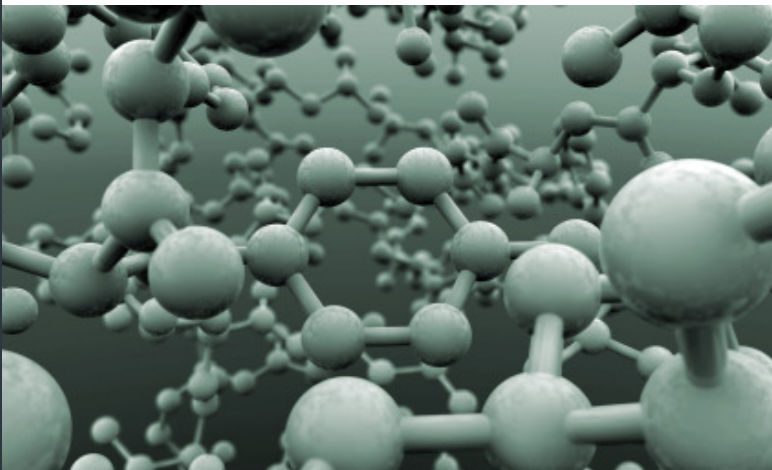
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Sample Scenario:

Determine Protein Structures for design of drugs and treatment of disease

The structure of protein plays a key role in the design of drugs for the treatment of various diseases. It is a huge challenge to identify the protein structure based on its sequence. The complex task of predicting a protein structure is usually broken into two phases with an accurate secondary structure prediction a key element in correctly acquiring a tertiary structure (i.e. the specific atomic positions in three dimensional space).

A Grid/Cloud portal for protein secondary structure prediction is developed based on ANEKA, with an AJAX based web console to monitor the status and performance statistics. Research scientists use the portal to discover new prediction structures in a parallel manner. A Support Vector Machine (SVM) based prediction algorithm is used with 64 sample protein sequences with the prediction complete in 20 minutes (compared to more than eight hours). This demonstrates the power of using ANEKA Enterprise Cloud software when integrated into Life Science scenarios.



ANEKA – GET IT

Recommended Uses



Aneka Thread

An application as a collection of one or more independent threads. A thread model fits better for architecting and implementing new applications, algorithms on clouds as this models gives finer degree of control and flexibility.

Aneka Task

An application as a collection of one or more tasks, where each task represents an independent unit of execution. This model is more suitable for grid/cloud enabling of legacy applications.

Map Reduce

This model is designed to model the MapReduce concept and applicable to processing of large data intensive applications. A MapReduce application is executed in a parallel manner through two phases.

Custom

Develop an application which uses one or all of these models or create a new model with ANEKA.

