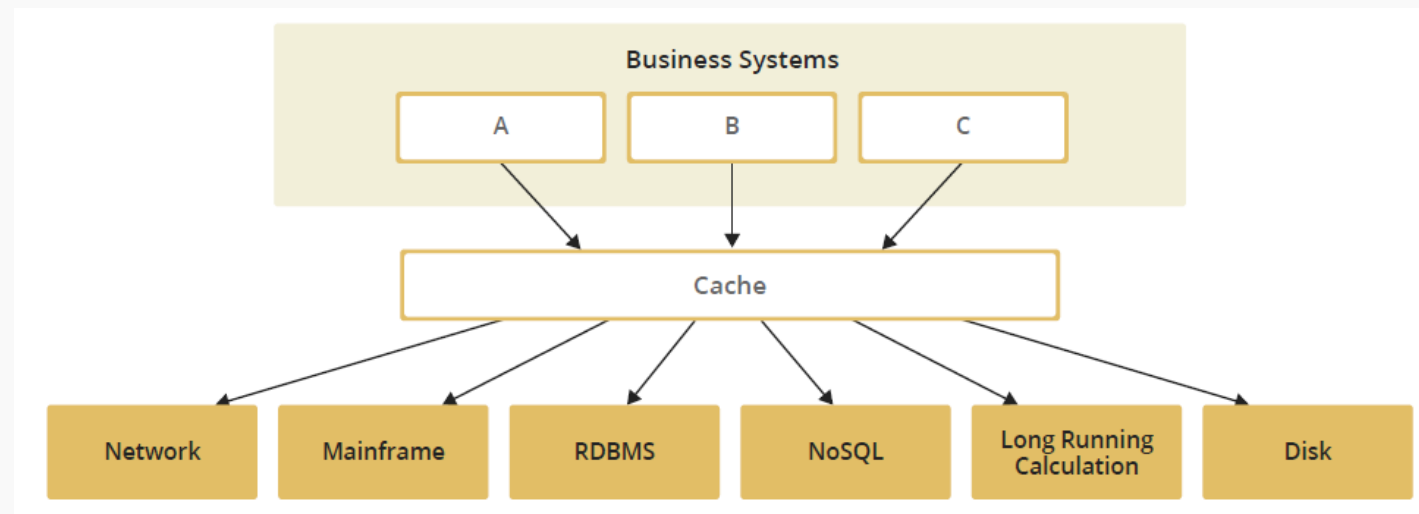# Caching

How we do it ?

Who we are?

- Leading software company
- Offices all over the world
- Web, Mobile and Windows Clients
- Highly available SOA system
- Scalability and Caching as a main application domain
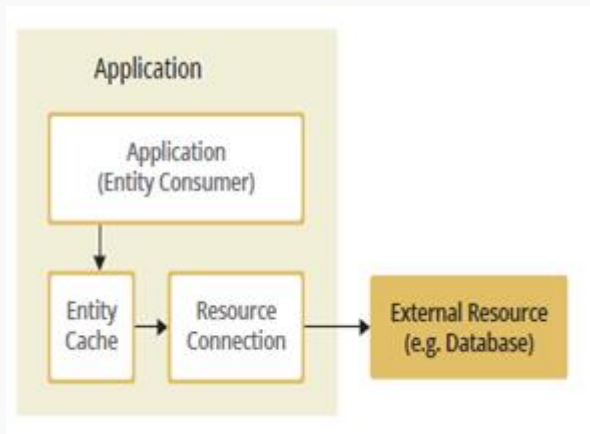- MS SQL servers as backend

Caching First - The First-Class-Citizen

- WHY CACHING?
  - Improved responsiveness
  - Decreased costs
  - Improved performance
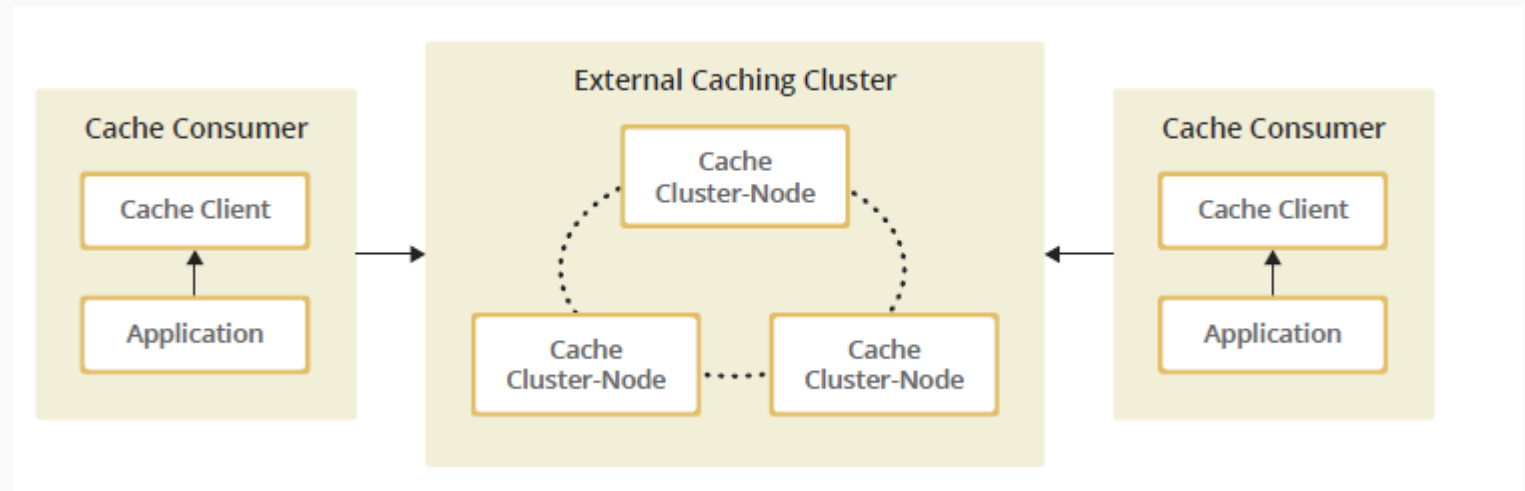 - Availability
- WHAT TO CACHE?
- WHAT NOT TO CACHE?

Caching Strategies

- In-Process:

- Client-Server:

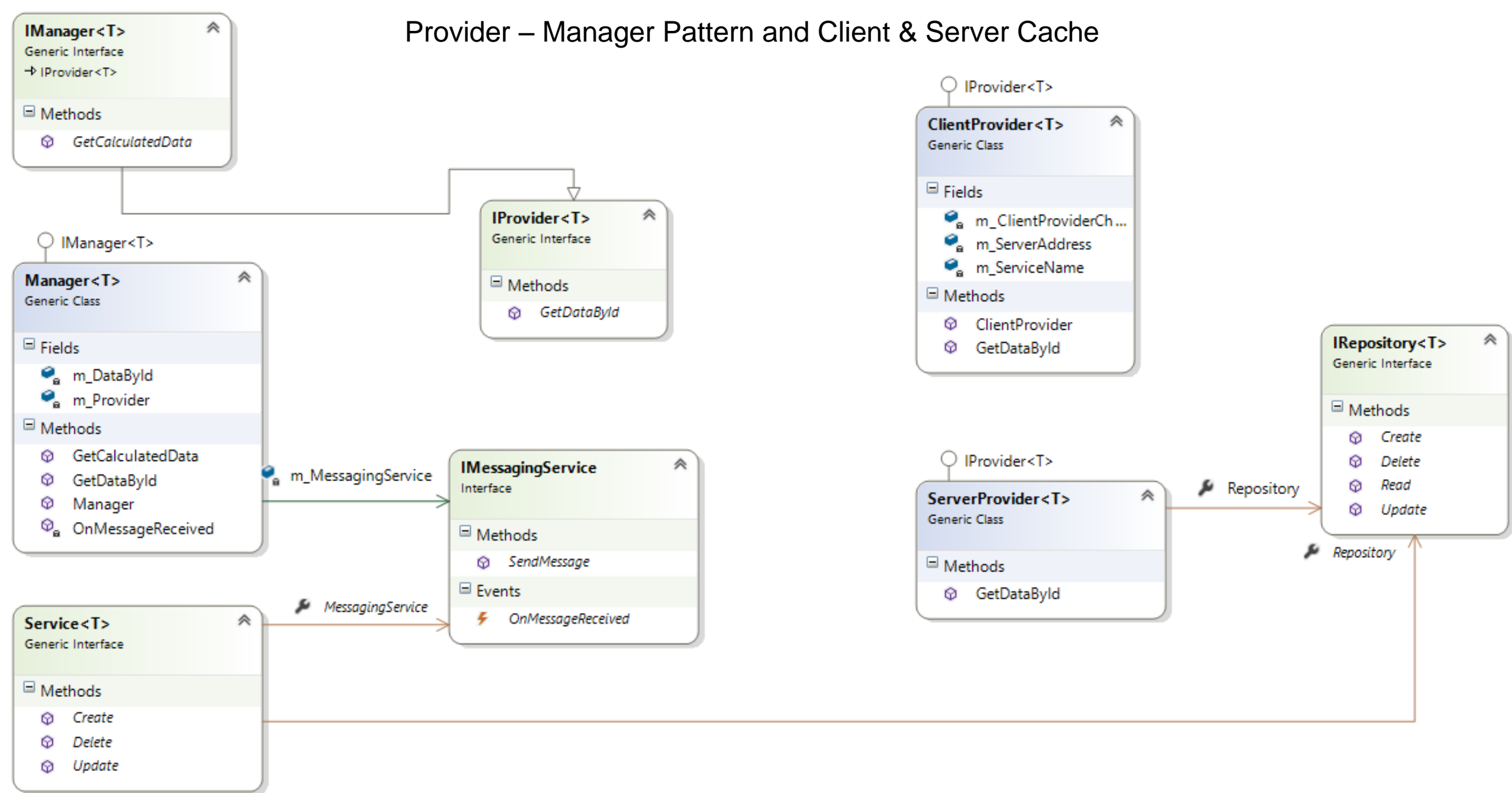

- Preemptive
- Geographical
- Partial

Some numbers

- 10,000+ concurrent traders
- 1000+ BO users
- Real-time system
- 30,000 API r/s
- Reliable messaging - 100,000 distribution/sec
- Average Execution time 20 ms

So how we do it ?

- CDN Cache (Static data)
- Server and Client application in process cache
- Cache synchronization using messages
- DB cache (SQL in-memory tables)
- ASP.net cache (SQL In-Memory tables)
- Redis Key-Value as caching solution

Provider – Manager Pattern and Client & Server Cache

What is next?

- SQL Server 2016 In-Memory OLTP as distributed caching systems

Version	SessionState Performance	Technology	Bottleneck
SQL Server 2012	12 000 batch requests/sec	SQL Server Interpreted T-SQL	Latch contentions
SQL Server 2014	300 000 batch requests/sec	Memory-Optimized Table, Interpreted T-SQL, Handling of Split LOBs	CPU
SQL Server 2016	1 200 000 batch requests/sec	Memory-Optimized Table with LOB support, Natively Compiled stored procedures	CPU

MSDN blog

- Service bus for windows server

THANK YOU!

Time for Questions?

Links

Helpful articles:

https://msdn.microsoft.com/en-us/library/dd129907.aspx

https://stevencalise.wordpress.com/2011/03/03/caching-in-a-service-oriented-architecture-soa-part-1/

https://msdn.microsoft.com/en-us/library/dn589802.aspx

https://msdn.microsoft.com/en-us/magazine/dn759445.aspx

https://www.asp.net/aspnet/overview/developing-apps-with-windows-azure/building-real-world-cloud-apps-with-windows-azure/distributed-caching

https://msdn.microsoft.com/en-us/library/dn589799.aspx

https://msdn.microsoft.com/en-us/library/dn589800.aspx

http://www.infoworld.com/article/2976934/application-architecture/best-practices-in-caching-in-aspnet.html