

LBL® Application Availability Infrastructure

Guaranteed continuity for mission & business critical services

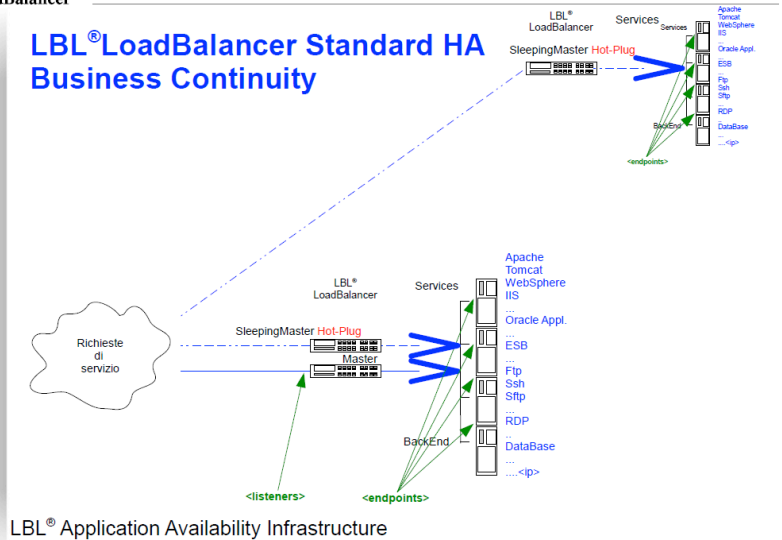
LBL® A.A.I. originated due to the need of delivering mission & business critical services mission-critical & business-critical services.

By analyzing a service request path, we can easily discover that the client - when connecting to the network- has to go through different layers before reaching the destination. These layers allow us to insert tools with the aim of optimizing the whole infrastructure. This requires a new architecture able to regulate, distribute, guarantee continuous delivery of services by means of rerouting requests towards more available sources. The invisible key player of these network architectures becomes the **BALANCER**. This typology of network component has been around for quite some time already on the market, alas the configuration was so complex that in the end it penalized the needed flexibility and the system integrator choices themselves.



Business Continuity

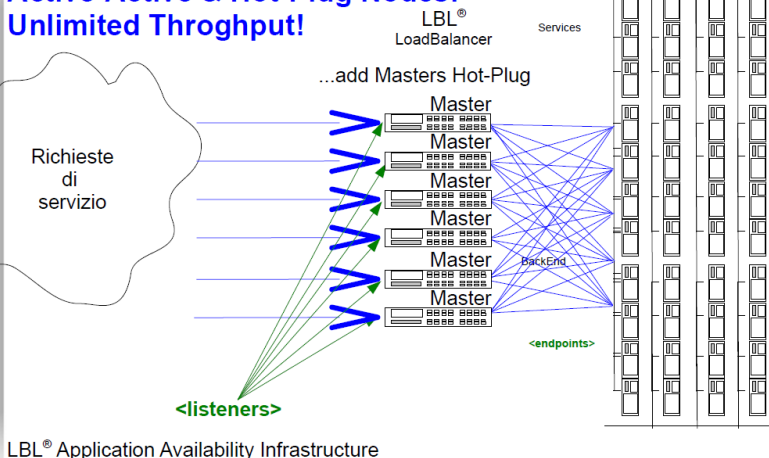
LBL® LoadBalancer Standard HA Business Continuity



From this consideration, in 2001 the idea of creating a product able to gather the best features available on the market about traffic routing at OSI level 7 and 4 took place. In addition, by design specs, it was mandatory to provide easiness of parametrization, so that end users would really consider it usable and therefore adaptable to their real business needs.

Scalabilità & Throughput

LBL® LoadBalancer Enterprise HA Active-Active & Hot-Plug Nodes: Unlimited Throughput!



The first product centerpiece for LBL® A.A.I. was then introduced: **LBL® LoadBalancer**. It's groundbreaking right away on the market: set apart the ease of use and flexibility, for the first time among balancers it integrates a multi-node cluster paradigm.

Contrarily to some other solutions implemented so far, LBL® LoadBalancer sports the ability to operate as "n" nodes within the infrastructure (compared to the standard 2-nodes configuration) to guarantee a matchless local and geographical reliability. It's capable of self-configuring nodes among themselves (*lookup discovery*), thus making -for the

first time ever- adding and substituting a node a completely transparent operation.

We couldn't just stop with this active/passive HA configuration. Under heavy traffic circumstances (Web TVs, web portals, multimedia providers, etc.) the balancer itself could become a bottleneck. The option of implementing these balancer instances as equal peers in a GRID configuration became an unavoidable choice. The **ENTERPRISE** version was born, able to broaden the computing power of the LBL® infrastructure according to the ever growing business needs, and without having to dismantle past installations. Even better, it's now even plug-n-play thanks to the lookup discovery feature.

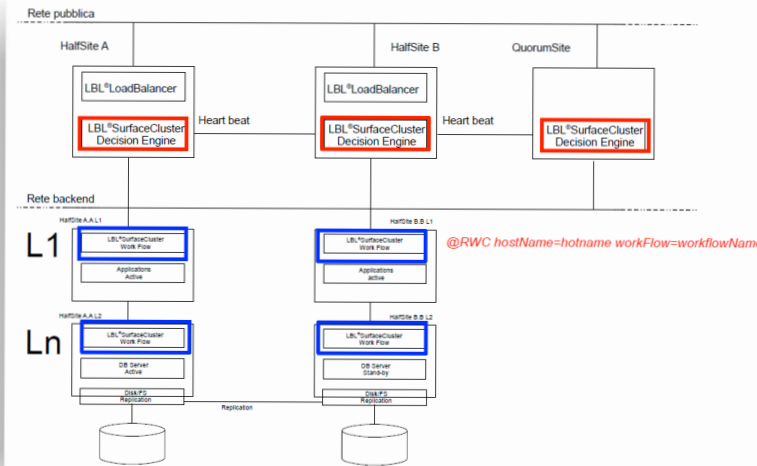
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Guaranteeing better freedom and availability to network resources wasn't enough to us, at least to address the current ever growing Business Continuity needs. We accepted the challenge and



LBL® Application Availability Infrastructure SC



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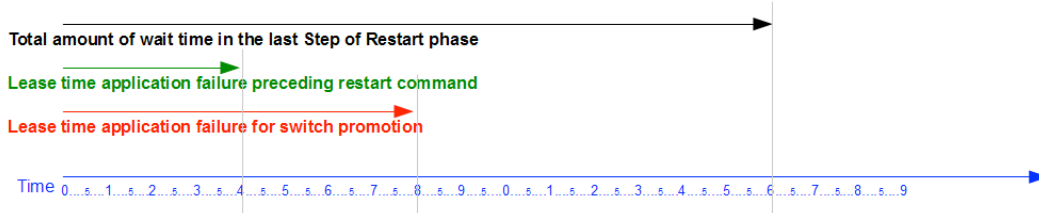
Following LBL® LoadBalancer example, the main objective is to keep implementation and maintenance activities as easy as possible. This brought:

- LBL® Surface Cluster Decision Engine
- LBL® Surface Cluster Work Flow.

The **Decision Engine** constantly verifies the service statuses and optimal operation, while triggering predefined actions when facing anomalies via the **Work Flow** module so that the original operational state is restored.

Another groundbreaking innovation is an intermediate **RESTART** phase between critical status acknowledgement and fail-over action. Usually the critical event is not due to "breaks", rather to software failures. Therefore the Decision Engine implements an algorithm which allows

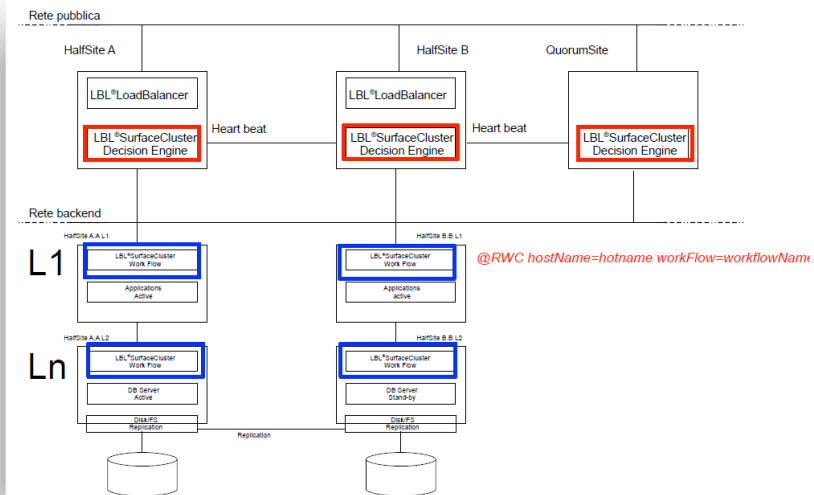
RESTARTS: 40% of time spent in a datacenter!



to operate application "restarts" before claiming an overall infrastructure failover and proceeding in executing the predefined actions previously agreed and planned.



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To best support your business needs, **LBL®LoadBalancer** implements a groundbreaking RDBMS-based traffic stats collection system. We can verify in a granular way (with a definition of a ms) how much an user has really taken advantage of a specific service, and under which SLA this happened. This can either be enforced as a periodic report, or a real-time check similarly to what happens with modern pre-paid services, with an unbelievable precision and depth of detail.



Statistics persistence: Relational DB

Even more, easy integration with Business Intelligence systems allows managers to keep real-time services usage under control, hence maximizing the business growth according to the current available resources.

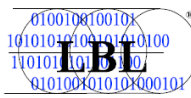
Statistic traffic data persistence:

- Relational Database
- Transactional processes



- JavaDB embedded (default)
- JavaDB networked
- IBM DB2
- Oracle
- MS SQL
- MySQL
- Postgres

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Statistiche su DB Relazionale

Suite di prodotti LBL® A.A.I.:

- LBL® LoadBalancer Platform
- LBL® LoadBalancer Standard
- LBL® LoadBalancer Enterprise
- LBL® Surface Cluster Decision Engine
- LBL® Surface Cluster Work Flow
- LBL® DNS Manager
- LBL® Monitor

HTTP(S)	Grouping	Domain	Command	RCode	EndPoint Name	EndPoint Port	URIPath	NumAl	Total Resp Time	Total Header Length	Total Bytes Sent	Total EndPoint Header Length	Total EndPoint Bytes Sent
HTTP	default	www.togoprest.dev	GET	404	loadbalbackend	8383			15	864	864	292	1584
HTTP	default	www.togoprest.dev	GET	404	loadbalbackend	8383			15	447	447	146	793
HTTP	default	www.togoprest.dev	GET	200	loadbalbackend	8382	CF(2003)	5	1006	41981	41981	15918	671643
HTTP	default	www.togoprest.dev	GET	302	loadbalbackend	8382	CF(2003)	6	6	443	443	172	177
HTTP	default	www.togoprest.dev	GET	200	loadbalbackend	8181	training	4013	6749205	15735386	15735386	13708806	193198095
HTTP	default	www.togoprest.dev	POST	200	loadbalbackend	8181	training	1159	2754153	5772816	5935104	4681012	16795663
HTTP	default	www.togoprest.dev	GET	200	loadbalbackend	8382	training	4022	7659000	15766927	15766927	13733475	194383613
HTTP	default	www.togoprest.dev	POST	200	loadbalbackend	8382	training	1151	3150313	5735466	5896704	4651681	16686946
HTTP	default	www.togoprest.dev	POST	200	loadbalbackend	8181	training	3976	743880	15593649	15593649	13584140	191560995
HTTP	default	www.togoprest.dev	POST	200	loadbalbackend	8181	training	1145	3318322	5706582	5867008	4628651	16603306
HTTP	default	www.togoprest.dev	GET	200	loadbalbackend	8382	training	4053	6750218	15899022	15899022	13829091	196642183
HTTP	default	www.togoprest.dev	POST	200	loadbalbackend	8382	training	1148	3835356	5718554	5879296	4636185	16635920

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