
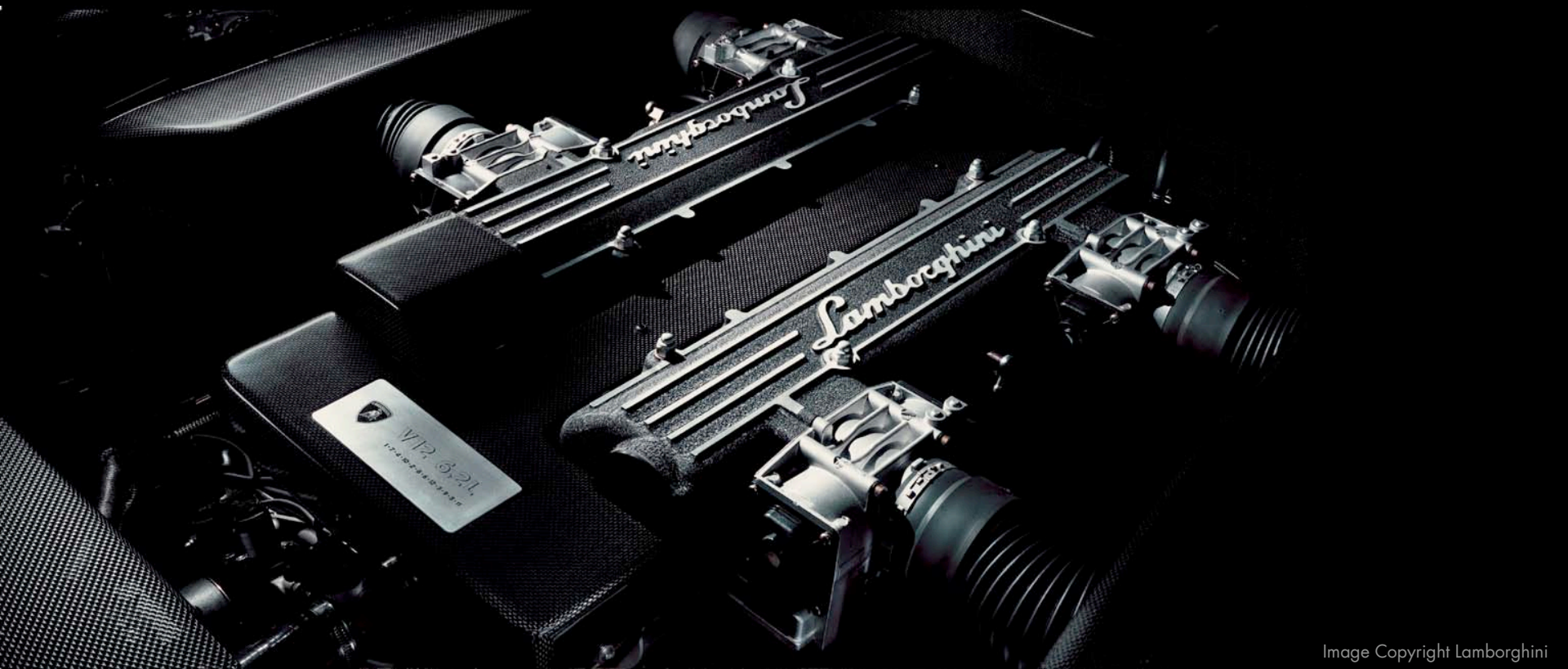


DPI – The End of the Internet?

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- A dark blue world map with white outlines of continents and countries, serving as a background for the text.
- DPI vendor
 - 200 customers in 50 countries
 - Products & solutions:
 - DPI software library
 - Bandwidth management systems
 - Lawful interception probes

Is Net Neutrality Endangered by DPI?

Don't blame the engine if the car drives too fast!



Internet Traffic Management – A DPI Application

- DPI does application classification only
- DPI (for traffic management) does NOT:
 - read the communication content
 - read all packets

```
for (int j = 0; j < loc; j++) res[j] = buff[j];
return res;

public void checkRes(int[] res) {
    for (int i = 0; i < res.length; i++) {
        res[i] = checkRes(res[i]);
    }
}

public int[] decodeMessage(int[] res) {
    int i = 0;
    while (i < res.length) {
        int loc = 0;
        while (loc < MAX_RES_LEN) {
            buff[loc] = res[i];
            loc++;
            i++;
        }
    }
}

public int[] extractMessage(int[] res) {
    for (int i = 0; i < MAX_RES_LEN; i++) buff[i] = 0;
    int loc = 0;
    while (loc < res.length) {
        extractMessage(res);
        return null;
    }
}

public int[] extractMessage(int[] res) {
    for (int i = 0; i < MAX_RES_LEN; i++) buff[i] = 0;
    int loc = 0;
    while (loc < res.length) {
        extractMessage(res);
        return null;
    }
}
```

Different Levels of Traffic Management

Classification scheme

... with ascending impact on net neutrality



Best Effort Service

- Current status quo

Pros:

- Provides maximum net neutrality according to some definitions
- No additional implementation cost

Cons:

- No QoS
- Unfair to majority of network users

Per-User Bandwidth Fairness

- Enforce fair bandwidth distribution during congestion

Pros:

- Heavy users have no negative performance impact on others
- Fair distribution of available resources among all users
- No DPI required

Cons:

- ?

Application-Aware Congestion Management (I)

The Problem:

- Different QoS requirements for different applications
 - VoIP: low latency/jitter & low but guaranteed bandwidth
 - File sharing: high average bandwidth, latency/jitter irrelevant

The Solution:

- Tiered priority management:
 - Highest priority: network-critical protocols
 - High priority: interactive real-time applications
 - Default priority: all applications with no specified priority
 - Low priority: high-bandwidth applications

Application-Aware Congestion Management (II)

Pros:

- Better congestion protection
- Better QoS from the same available bandwidth
- Better resource utilization at the ISP which can mean lower charges for Internet access service

Cons:

- Low priority applications will get slightly less bandwidth in times of network congestion
- Requires DPI equipment

Want to Know More?

Download our free DPI white paper:

<http://www.ipoque.com/resources/white-papers>



Transparency is Key!

- ISPs should be open about their traffic management policy
- Then they can ...
 - offer additional products
 - lower infrastructure investments
 - offer a higher-quality product to their subscribers
 - attract new customers and reduce churn

And Finally ...

OpenDPI

- Open source DPI library
- LGPL license
- Based on ipoque's PACE product

Available Now @ <http://opendpi.org>

Visit us at
Stand #132

