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BOX 8055
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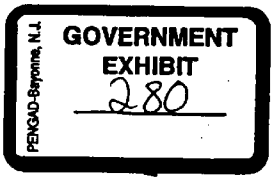

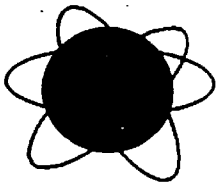

Internet Technology Lab

To: Memo for File
From: S. McGeady
Subject: Sympathy for the Devil

Date: August 28, 1995

If there were any doubts about the relative position of Intel and Microsoft in the power structure of the personal computer industry, Intel's executive office has now removed them. In moving to dismember the four-year-old Intel Architecture Labs, Intel loudly proclaims its place in advanced computer technology: second.

The Intel Architecture Labs (IAL) has, since June of 1991, served as one of the creative and diplomatic engines of the personal computer industry. Virtually every aspect of the PC that differs from the neolithic 1980's-era percursors was touched by IAL's research, development, and industry evangelism. During this time IAL brought to the industry a new motherboard bus with over thrity times the bandwidth of the original IBM PC bus; a new model for multimedia based on flexible, free software; an industry standard for connection of telephones to PCs; and at least three new businesses at Intel.

And yet, for reasons as yet unclear, Intel's Executive Office has decided to re-assign the Lab's founder and leader, and split its brain trust among the tactical, short-term focused product divisions through which it pushed, against great resistance, each one of its innovations.

Informed speculation must touch upon the curious role that Microsoft Chairman Bill Gates played in this decision. Gates has always been at odds with Intel whenever the semiconductor company strayed from the production of cheap processors into any field involving software. As far back as the mid 1980's, Gates complained directly and violently about Intel's ill-fated engagement in the UNIX business. But that was before Microsoft became the most powerful force in the computer business, and before Gates was the richest man on earth. And it was before he understood IAL's strategy to enable a new wave of software innovation.

On August 2, 1995, in a meeting of Intel and Microsoft executives, Bill Gates told Intel CEO Andy Grove to shut down the Intel Architecture Labs. Gates didn't want IAL's 750 engineers interfering with his plans for domination of the PC industry. Gates made vague threats about support for other platforms, and on the same day he announced a major program to support Digital Equipment's Alpha microprocessor, an Intel competitor. Gates was livid about IAL's investments in the Internet, and wanted them stopped. All of this was said in the presence of executives from both companies.

Sometime shortly before August 24, coincidentally the launch date for Microsoft's Windows'95 operating system, Craig Barrett, Intel's COO and Grove's second-in-command, published a secret memo outlining the dismemberment of IAL. Its leader would be re-assigned pending his retirement, and its two top managers would be transferred to roles within business units anxious to make tactical use of the labs' strategic resources and managed by executives equally anxious to avoid angering Microsoft.

Microsoft is said to have spent as much as $4M to gain access to the Rolling Stones' song "Start Me Up" for use in their Windows'95 promotions. If Intel were to go looking for a corporate theme song from the same source, an appropriate choice might be "Sympathy for the Devil".

The History

IAL was born in 1991 as the Software Technology Group, a rag-tag collection of balkanized software resources collected from nooks and crannies around Intel. It's main early activities were all in direct support of Intel silicon: writing compilers for the 486 and the impending Pentium microprocessor, optimizing simple software functions for the Intel processors, and supporting other Intel semiconductors, like the I960 embedded controller and the I750 multimedia chips. Early in 1992, the Architecture Development Lab (ADL) was folded into STG, and a story began to emerge.

Craig Kinnie, Steven McGeady, and other members of IAL's early staff were not microprocessor developers by training. They designed and built computer systems and software, and their counsel to Intel was that, unless dramatic action was taken, the computer systems built around Intel's processors and Microsoft's operating systems that ran on those systems would become the prime limiting factors in the capability of new systems, dooming Intel to slip farther behind the RISC workstation vendors that were nipping at its heels. The PC's peripheral components and interconnection systemsm couldn't handle the mass of data required to processor new multimedia data, and the Windows operating system was hopelessly primitive, slow, and bug-ridden. Most importantly, due in part to these limitations, PC innovations were slow in coming, as the software industry focused on warfare over market share for word processors, spreadsheets, and presentation software.

Using an approach that was by turns systematic and serendipitous, IAL undertook to transform the PC into a platform for the launch of a whole new generation of applications: realtime multimedia communications apps. While daunting, this task seemed appropriate - these were (and are) the tasks most demanding of all aspects of computing and communications, and thus were the most likely to propel PC technology forward. Thus IAL embarked on the remaking of virtually every major subsystem of the PC as well as the creation of brand-new technologies, where pre-existing ones were lacking. IAL built digital video compression and display technology, symmetric multiprocessing servers, telephony interfaces, three-dimensional graphics rendering systems, battery management software for mobile computers, network communications interfaces, digital voice compression code, and a multitude of other technologies and interfaces.

These activities may not have raised the ire of Bill Gates if Intel, as it had in the past, then simply turned the technologies and software over to Microsoft for inclusion in their next operating system. Given Microsoft's dominant position in the software industry, it seemed to most Intel executives outside of IAL that this would be the simplest and most effective course to take. But IAL was frustrated by the slow pace at which Microsoft deployed new software and capabilities into the market: its new and much-hailed operating systems, Windows NT and the code-named 'Chicago', were slipping in schedule, and Microsoft was reluctant to make major changes to interim releases.

Microsoft also had an uncomfortable habit of changes the rules of the game without notice. IAL produced technology with standard interfaces that allowed all software developers to gain easy access to the technology, but when Microsoft gained access to them it would often unilaterally change these interfaces, delaying independent software developers and creating advantages for its own software. Even when Microsoft had no equivalent technology, it would often slow the market by "pre-announcing" later availability of a competitive technology, a method known around IAL as the "aura of inevitability" that Microsoft would enter a market, thereby causing cautious developers to wait.

IAL determined that this behaviour was impeding entry of the technologies into the market. The fact that it also robbed Intel of credit for IAL's accomplishments did not got unnoticed either. Only a few months after Intel presented to Microsoft a plan for a joint effort toward "Plug and Play" hardware that would automatically configure itself upon insertion - a technique based on Intel technology developed for its EtherExpress board - Microsoft and Compaq took out a full-page ad in the Wall St. Journal trumpeting the capability, with no mention of Intel.

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The Strategy

Architecture Diffusion
"Soft Diffusion"
Indeo
TAPI
VDI

The Backlash

VDI - IHV fax campaign
DMI
Microsoft "Open Process"
3DR attendee expulsion

The Explosion

NSP, Native Audio, ...
Internet - Java, Netscape

The End

Barrett's memo