Little Lessons From History

by Bruce Taylor

CHAPTER 4:   Meetings, meetings, meetings

I was TPF Systems Manager at KLM from the spring of 1976 till the autumn of 1986: more than 10 years. When I arrived on the scene TPF (ACP as it was then called) was an airline system and airlines lived in the cosy world of government regulation. There were already a few non-airline systems in railways (AMTRAK and British Rail) and in hotels (Holiday Inn and Marriott, if my memory serves me correctly), but other than that TPF was a product "of the airlines, by the airlines and for the airlines". Was it not called Airline Control Program for a reason?

The TPF User Group (called the AUG back then) was already in existence, but was almost exclusively a US affair and rarely, if ever, did any of the international airlines attend it. It did not have any formal structure, nor any funding, nor any management backing for actually influencing the development of TPF at IBM; that happened elsewhere.

Through the 1970's and into the early 1980's, the drivers of TPF were united under the auspices of IATA in the IPARS/PARS User Group, an official technical subcommittee of IATA, and IBM recognised this. This group was divided into the IPSC (IPARS/PARS Steering Committee) and its technical arm, the IPSS (IPARS/PARS Software Subcommittee).

The IPSC consisted of the IT bosses of all IATA members running TPF systems. In those days the TPF system, with its reservations and departure control applications, was the undisputed king of airline IT and considered to be at the heart of airline operations. It received the unwavering attention and unflinching support of senior management. The IPSS was a group of technical specialists, all TPF Systems people, appointed to further the technical requirements of the community in negotiation with IBM. The traditional members were, from the US: American Airlines, Eastern Airlines, PANAM, TWA and United; and from the international scene: Alitalia, British Airways, Japan Airlines, KLM, Singapore Airlines and Swissair.

In 1976 I jumped into this group as the KLM representative with great gusto. Here were many of the great names of the TPF community and I was right in the middle of them, even though I was considered a relative "junior" with only two years experience. Within a year I was appointed "Keeper of the TPF Requirements List", the be all and end all of the IPSS's existence. Maybe this was because I seemed to be able to write reasonably concisely and accurately in English, it being my native language, or maybe it was because I seemed singularly unimpressed by the preaching of the gospel according to the almighty and infallible IBM. In those days it was a case of: "IBM RULES, OK!" and so they did; they had 80% of the total IT spend world-wide.

These were still very much the pioneering days and the product was only a vague shadow of its current self. It had a 381 byte ECB with 8 data levels and data was constrained to 128, 381 or 1055 byte blocks. Communications were limited to the ALC, BSC, LSFR and LSCT protocols, recoup ran with separate hard-coded chain chase segments per data structure and the system had to be brought down for directory roll-in. Everything, including all the applications, was written in pure and unadulterated hard-coded assembler; we were just learning the value of using symbolic names and equates. There was no VFA, no multi-processing, no database manager and a hundred other things we now take for granted. In many ways, what the TPF product is today owes a great deal to the IPSS's tenacity in pursuing the TPF Requirements List with IBM and in not taking no for an answer.

The IPSS met almost every quarter, sometimes with IBM and sometimes without, and hammered away at persuading IBM of the validity of the requirements and trying to devise acceptable technical solutions with them. In view of the geographical spread of the members and the fact that meetings rotated around member locations, you can imagine the number of air miles involved. To prove that "Rome was not built in a day", consider that many of the major items on the 1977 version of the TPF Requirements List did not see the light of day till the arrival of TPF4.1 in 1994…

One particular episode from the IPSS work, which illustrates what was going on in those days, is the story of VFA. It also recognises an unsung hero of the TPF world. It is my belief that this started in 1978, but I may be a year out. At one of the IPSS meetings the representative from Alitalia, Nunzio D'Amore, who was a very active member of the group, but not a very vocal one since his English was rather limited, said he had something he thought we should look at. In those days we all went in and changed everything in the guts of the control program whenever we felt like it, though loading it into the live system was a different matter. People and software were cheap; hardware was excruciatingly expensive.

However, Nunzio said he had inserted some code into the FIND/FILE processing to see if the record in question was in a buffer in "core", which he called the Virtual File Area. Measuring this in a test system seemed to indicate that a significant number of FIND's could be satisfied by copying the record from the buffer rather than doing a physical read to the disk. We all looked at him in utter disbelief and then pandemonium broke out. The prevailing theory

at the time was that, since TPF spreads all the records across the physical devices in the database, accesses would be spread equally and all disks would be loaded equally to their maximum ability (which they approximately were). Hence, we all thought that buffering would have no effect, even though we were only able to utilise less than 50% of the disk surface area before I/O response times killed the system.

What we had not realised was that on each disk a small subset of the records were accessed at a much greater rate than the rest and buffering would affect this significantly. Nunzio realised it, and where he got the idea from I do not know, but I credit him with "inventing VFA". I took his code to KLM and we played with it. After about 6 months it went live and we were getting a 30-40% hit ratio on reads, which was fantastic. VFA appeared as a standard feature in TPF1 in 1980.

During KLM's period of running Nunzio's VFA prior to TPF1, I found and corrected a logic error in the code, a "set system mask enable" instruction was one instruction too early in the stream, which resulted in very infrequent data corruption. I remember this so clearly since it was the last bit of software I ever coded in TPF or anywhere else. Since then I have only talked and written about how other people should do it. Needless to say, I still live with the illusion that I could do it myself again, if necessary, but I hope I never have to prove that.

The IPSC's dominance, and its role as the "Owner of the TPF Requirements List", was killed by the JADE Project, but that's another story for another chapter. Although I was still that Keeper until 1989, when I could hand it over to Dave Bull of American (who almost immediately passed it on to Steve Quackenbush of Galileo), from about 1986 the IPSC had completely disintegrated and ownership of the list came under the TUG. The fact that I kept that list intact and alive through "The doings of JADE" (next chapter), and until the TUG was organised enough to deal with it effectively, I consider one of the major achievements of my TPF career.

Bruce Taylor – Amsterdam, December 2000

COMING IN SEPTEMBER

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Chapter 5

"The doings of JADE"

TPF User Group Conference Update

The Fall 2001 TPF User Group Conference will be held at the Renaissance Esmeralda Resort in Palm Springs, California, October 21-24, 2001. The   Resort is located at the base of the Santa Rosa Mountains in the affluent community of Indian Wells. The Resort is thirteen miles east of Palm Springs Regional Airport, a 2½ hour drive from Los Angeles International Airport and a 1½ hour drive from Ontario International Airport.

The room rate is $162.00 per night single or double occupancy, plus applicable hotel tax. You will be charged for the first night room upon making reservations. (Note that this rate is applicable for stays up to 3 days both prior and after the conference dates, as long as the stay is contiguous with the conference dates).

All hotel cancellations must be received by the hotel at least 7 days prior to the scheduled arrival day. (The hotel will provide a cancellation number.) If cancelled within 7 days of arrival you will be charged for one night stay. Your hotel reservations may be made by contacting the hotel directly at:

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Renaissance Esmeralda Resort
44-400 Indian Wells Lane
Indian Wells, CA 92210-8708
Tel. (760) 773-4444
Fax: (760) 773-9250

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Additional information on ground transportation, climate, and hotel facilities can be found on the TPF User Group Website at:
http://www.tpfug.com