

KERATAN AKHBAR-AKHBAR TEMPATAN
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SERANGAN RANSOMWARE

*Pencipta virus peras duit jika mahu buka
sekatan ke atas sistem komputer*



BERITA IT

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CyberSecurity Malaysia, agensi di bawah Kementerian Sains, Teknologi dan Inovasi (MOSTI) mengeluarkan amaran 'Ransomware', sejenis malware atau virus berbahaya yang menyerang komputer dan menghalang akses kepada sistem sehingga bayaran tertentu dibuat kepada pencipta virus untuk membuka sekatan.

Aplikasi berbahaya ini cuba memaksa mangsa membayar wang tebusan dengan mengeluarkan mesej 'pop-up' di atas skrin komputer.

Mesej pop-up ini akan menyatakan komputer pengguna sudah dikunci dan semua fail di dalamnya dienkripsi sebelum meminta wang tebusan dibayar bagi memulihkan semula akses ke komputer mereka.

Menurut Ketua Pegawai Eksekutif CyberSecuri-



Dr Amirudin

ty Malaysia, Dr Amirudin Abdul Wahab, pencipta Ransomware meletakkan mangsa dalam ketakutan dan panik, seterusnya mengakibatkan mangsa menekan pautan ataupun membayar wang tebusan.

"Namun ia akan menjeruskan mereka lebih dalam kepada jangkitan malware atau virus yang lain pula," katanya.

Ransomware tidak menasarkan kepada pengguna di rumah saja, malah operasi perniagaan dan syarikat turut terkesan dengan kerugian untuk membaiki dan memulihkan sistem atau fail yang rosak serta boleh menjejaskan reputasi syarikat.

Contoh mesej yang biasanya akan dipamerkan

dalam ransomware termasuk 'Your computer has been infected with a virus. Click here to resolve the issue', 'Your computer was used to visit websites with illegal content. To unlock your computer, you must pay a \$100 fine' atau 'All files on your computer have been encrypted. You must pay this ransom within 72 hours to regain access to your data'.

Dr Amirudin berkata, jika komputer anda dijangkiti dan menerima mesej daripada ransomware, jangan sesekali mengikut arahan pembayaran tetapi laporkannya kepada pusat keselamatan Cyber999.

"Membayar wang tebusan tidak menjamin fail yang dienkripsi akan dilepaskan tetapi ia hanya memberi wang kepada penjenayah dan mungkin memberi maklumat perbankan pengguna kepada mereka," katanya.

Oleh itu, pengguna Internet serta pentadbir sistem perlu mengambil langkah berjaga-jaga lebih awal untuk melindungi rangkaian komputer mereka daripada jangkitan ransomware.

Malaysia's membrane master

Former petroleum engineer's work makes a high mark in fibres for filtration



Finished product: Membranes in fibre and flat sheet form hanging up to dry.



In use: Ahmad Fauzi with a test purification ensemble scaled down 10 times its actual size. The fibres work within steel chambers set with pressure gauges.



Closer look: Membrane fibres made out of polymer (in beaker).



Many uses: The fibre bundle on the left is being used in a test for filtering palm oil.

Story and photos by
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IN 1991, when Professor Dr Ahmad Fauzi Ismail was working as an engineer for a petroleum company, one of the major problems faced by the industry was the presence of carbon dioxide in oil pipelines.

Mixed with air, it turned acidic and became corrosive. The phenomena, also caused plaque build-up, in the pipes running from the offshore rigs of Terengganu to receiving plants in Kerteh, affected productivity and yield. To clean this, companies had to send robots into the pipes to clear the problem, a troublesome and expensive procedure.

That was when the Malacca native who started life as a salesman in his parents' textile shop thought, "Why not remove the carbon dioxide in the beginning?"

There were some existing solutions, electrolysis and distillation to name two, but they were energy intensive processes requiring heat — a no go in terms of cost and practicality.

Thus, began a journey that would see Ahmad Fauzi becoming the recipient of the Merdeka Award last year for Outstanding Scholastic Achievements for his work in membrane technology, a separation method for filtering liquids and gases.

The membranes Ahmad Fauzi works on act like a sieve, allowing only certain molecules or ions to pass, separating them from the rest which do not fit pore-size requirements.

All this happens at a cellular level as gas or liquid is piped into a tube of fibres, sealed at the end to ensure only what is desired is produced as output.

"When I took my master's in 1992, membrane technology was nowhere in our textbooks. Via senior personnel from my former workplace, I was introduced to Professor Hamdani Saidi, who established the Membrane Research Unit (MRU) of Universiti Teknologi Malaysia in 1990. I was his first student. To convince him to take me in, I promised to be invaluable to him," said Ahmad Fauzi, who is now dean of research alliances for materials and manufacturing in University Teknologi Malaysia, Skudai.

Ahmad Fauzi readily admits he is no pioneer in membrane technology. The South Koreans, Japanese, British and Americans were already developing their own technologies as early as the 1970s and 1980s under a great deal of secrecy. If it was not for his exposure in the oil and gas industry, the entire field of study might have eluded him.

"While we were encountering problems with the petroleum refineries, they always had consulting teams from countries. It made me wonder why couldn't Malaysia develop

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**SAMBUNGAN...
THE STAR (METROBIZ) : MUKA SURAT 19
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Straw-like: The fibres act like a sieve to allow only desirable materials to seep through its membrane. Output then travels along the inner hollow sections.



Continuing research: This batch is tinged by the colour of additives used to increase the strength of the membrane.

From desalination to dialysis

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its own technology? Why must we buy from others all the time?" said Ahmad Fauzi.

His development work took place between 1994 and 1997, starting with tests done on home formulated polymer sheet stretched across a desk-sized tray with tubes attached to a condenser and a gas tank.

The polymer sheet formula, comprising of a secret recipe of solvent and non-solvents, took two years to perfect. Ahmad will only reveal that the polymer has to be of "analytical grade", meaning it is very high purity, so it can withstand pressure.

When results indicated performance comparable with commercially imported versions, Ahmad started producing his own polymer fibres, churned out from a self-built hollow fibre spinning system.

"I was churning out hundreds of kilometres of it during my doctorate days at the University of Strathclyde in Glasgow so I became known as Mr Noodle due to the vermicelli-like appearance of the membrane," Ahmad Fauzi recalled.

Working like filters, these fibres can be likened to hollowed out misua-sized straws. Misua, is a type of particularly thin Chinese noodle.

In the early batches, the outer diameter was about 0.6mm. This was later refined to between 0.2mm to 0.5 mm. Within this lay the inner diameter measuring between 0.1mm to 0.3mm with pore sizes of between 0.0001microns to 0.01microns.

The different diameters, explained Ahmad Fauzi, allows a wider range of applications for different fluids such as water (for desalination) and blood (during dialysis).

"Now, you have lasers and super drills for such processes. Back in my time, it was all manually done. So, on days when I had blockages in the machine, I have to restart the process from scratch. During winter, when it was -25°C, I risked frostbite dipping my hand into the water bath to retrieve the strands," said Ahmad, who describes those days as frustrating.

In 1998, Ahmad wrote his first proposal to the **Ministry of Science Technology and Innovation (Mosti)** to continue development

work, starting with the rebuilding of his fibre spinning system, itself a patented invention.

Ahmad Fauzi has secured up to RM43mil in research grants from various organisations since 1998.

The sum, said to be the largest so far in the university's record, will go towards financing human capital and infrastructure, such as the development of machines to facilitate experiments, on the multiple uses in membrane separation.

Moving forward, Ahmad Fauzi can see his work addressing what has now become the most talked about commodity in the Klang Valley – water.

One immediate use for the technology will be on environmentally harmful wastewater and drilling fluids produced during the drilling of oil wells.

"We can look towards a quantum leap in quality, a 99% rejection of waste substances with a very, very clean output into the envi-



Varied uses: A closer view of the fibre bundles that act as filters. They can be used to filter fluids like seawater and blood.

ronment," he said.
To date, Ahmad Fauzi's separation and purification processes using membrane technology have also been tested on salt water. It has also been tested for use in dialysis treatment to filter the blood of kidney patients.