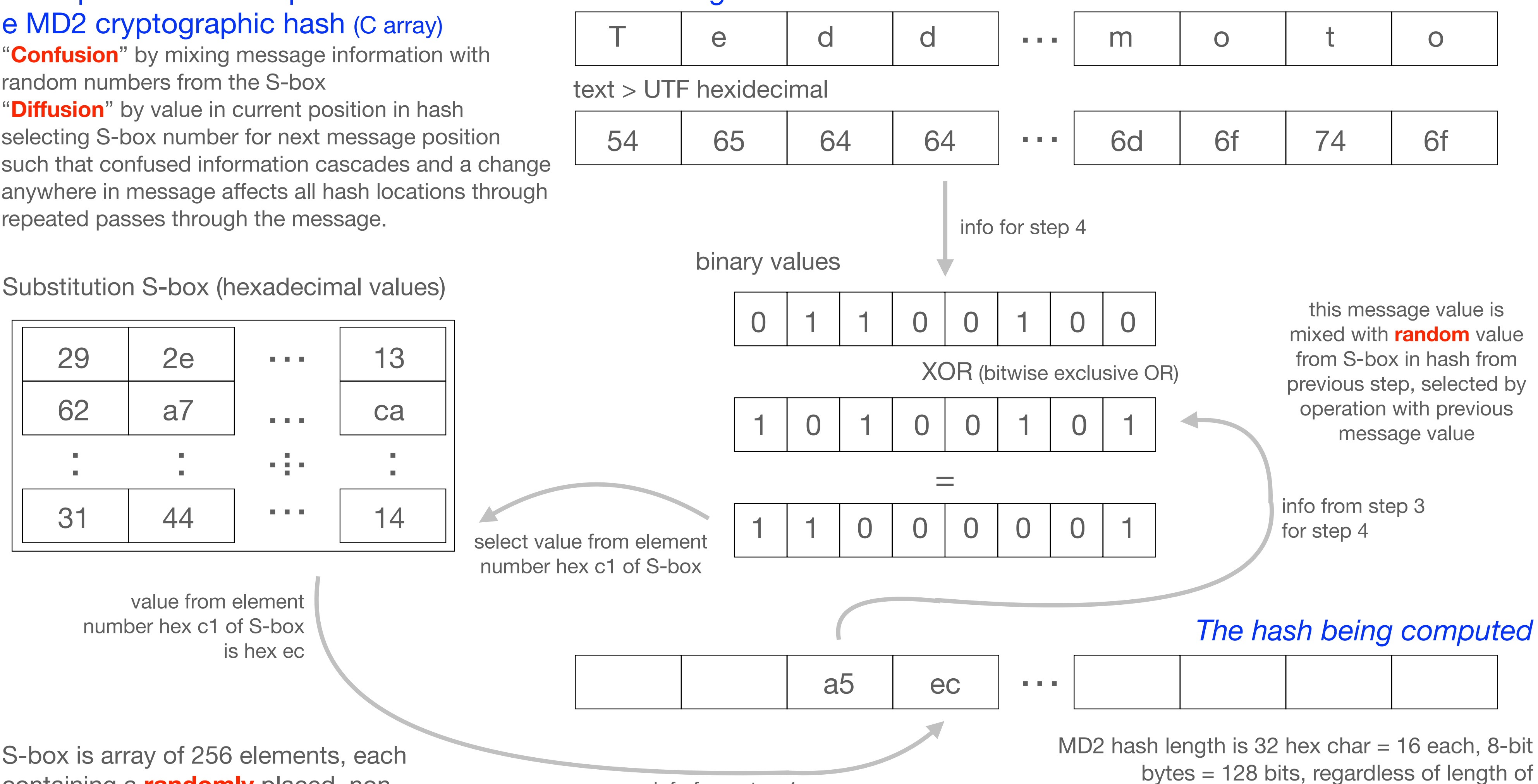
One step in one of the operations in the MD2 cryptographic hash (C array)

- "**Confusion**" by mixing message information with random numbers from the S-box
- "**Diffusion**" by value in current position in hash selecting S-box number for next message position such that confused information cascades and a change anywhere in message affects all hash locations through repeated passes through the message.



The message

T	e	d	d	⋯	m	o	t	o

text > UTF hexidecimal

54	65	64	64	⋯	6d	6f	74	6f

info for step 4

binary values

0	1	1	0	0	1	0	0

XOR (bitwise exclusive OR)

1	0	1	0	0	1	0	1

=

1	1	0	0	0	0	0	1

this message value is mixed with **random** value from S-box in hash from previous step, selected by operation with previous message value

info from step 3 for step 4

Substitution S-box (hexadecimal values)

29	2e	⋯	13
62	a7	⋯	ca
⋮	⋮	⋱	⋮
31	44	⋯	14

select value from element number hex c1 of S-box

value from element number hex c1 of S-box is hex ec

The hash being computed

		a5	ec	⋯				

info from step 4 for step 5

S-box is array of 256 elements, each containing a **randomly** placed, non-repeating value in decimal range 0-255

MD2 hash length is 32 hex char = 16 each, 8-bit bytes = 128 bits, regardless of length of message, and maintained at this length by modular arithmetic